

FMT

Handwritten notes

MBBS Help

<http://mbbshelp.com>

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Name: _____

Subject: FMT



Forensic Medicine → Application of Medicine in Law.

After P.M. ⇒ What is the Manner of death?
↓
it means death is

Police is Not Register the case

Natural

↓

Unnatural

↓

Homicide Suicide

Q. 33 yr old ♀; Healthy condⁿ; visited her friend in hospital; Returned home & had Hemiplegia & confusion all over Accident body? cause of death?

H/o → How Many years (∴ Marriage)
 ↓
 How Many kids

- Any H/o Disease
- Any H/o Drug intake

⇒ OCP induced coagulopathy
↓
Natural cause of death

→ followed only by doctors

→ followed by Anybody (doctors, government, people)

Medical Jurisprudence

- Law in Medicine
→ How the Law affects our Profession

Medical Etiquettes

→ Conventional Law of Courtesy
eg. Not charge for doctors colleague

→ A breach of etiquettes is Not punishable

Medical Ethics

→ Moral Principles
→ Self imposed code of conduct.

[MCI | SMC]

↓

Code of Medical ethics

WARNING NOTICES

6 A's ⇒ ①

ADULTERY (Changing of sperms)

ASSOCIATION / COVERING

ADVERTISEMENT

ALCOHOL (Not examine & drink condⁿ)

ADDICTION (Being drug addict)

ABORTION (UNLAWFUL)

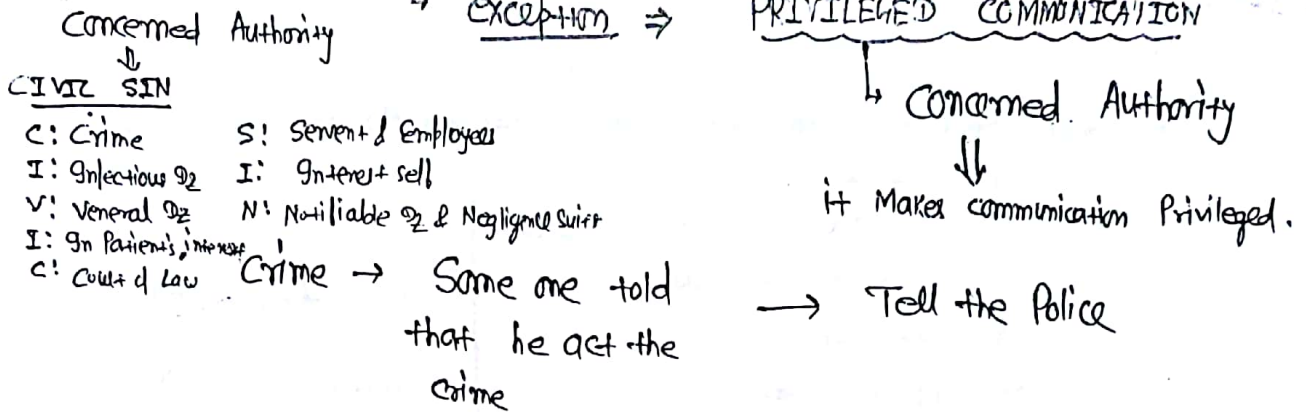
↳ violates the MTP

⇒ Unqualified individuals like compounder

• Advertise on Small Board
Name, Qualification
• can't display fee other than chamber
• Not more than twice advertisement.

- ⑦ ISSUING FAKE CERTIFICATES: Any certificates — Death
— Birth
— Disability
— MLC
- ⑧ DICHOTOMY ('FEE SPLITTING')

⑨ PROFESSIONAL SECRECY



- Some one has AIDS → Sexual partner
- Court
- Patient Interest - eg. colour blindness - call tactics

9/ Violates the warning Notice

↓
Serious Professional Misconduct / Infamous conduct / Ethical Negligence

↓
Punishment

① WARNING

Again

②

Penal
PENAL ERASURE
OR

PROFESSIONAL DEATH SENTENCE

Fine

Impersonation

Temporary

③

→ given by court only

⇒ Punishment of Infamous conduct is given by firstly
"State Medical Council"

↓
Who decides in SMC? ⇒ Professional colleague in SMC

↓
if Not happy w the decision; Appeal

↓
At Central Health Ministry
↓ Forward to
MCI

Q. The Disciplinary control over Professional → Decide
Misconduct is primarily Maintained in ⇒ "State Medical Council (SMC)".

LEGAL PROCEDURE

INDIAN PENAL CODE (1860) ⇒ Definition & Punishment of crime.
(I.P.C)

CRIMINAL PROCEDURE CODE (1973) ⇒ Procedure followed after crime

INDIAN EVIDENCE ACT (1872) ⇒

[RPC: only in J&K
CrPc: Not valid under section 370
Ranbir Penal code]

↓
Definition / Relevancy / Recording / Weightage of evidence
↓

oral > written
↳ b/c of cross-examination

AMENDED / MODIFIED ⇒ CRIMINAL LAW (AMENDMENT) ACT, 2013

INQUEST

↳ Inquiry into the cause of death

① POLICE INQUEST,

② MAGISTRATE INQUEST,

③ CORONER INQUEST, → started in 1871; Last done 1999 (Bombay)

④ MEDICAL EXAMINER INQUEST. → Best inquest

↳ JURY decide the guilty or
↳ add No. of Members
(5, 7, 9, 11, 13)

↳ Not done in India

POLICE INQUEST \Rightarrow 174 Cr.P.C; M/c in Gndia ^{NEED!!}

\hookrightarrow Lowest Ranking who do the Police Inquest \Rightarrow Head constable

MAGISTRATE INQUEST \Rightarrow 176 Cr.P.C

\hookrightarrow done in

constable



Head constable \rightarrow Lowest Police to conduct inquest.



Assistant sub-inspector



Sub-inspector \rightarrow Inspector \rightarrow SHO
(Station House officer)

(1) Death in custody;

(2) Death in Prison;

(3) Death in Police living;

(4) Exhumation

(5) Dowsy death

eg \Rightarrow death in juvenile home;
death in outside court

Judicial
Magistrate

Executive Magistrate / Tahsildar /
Sub-divisional Magistrate / District Magistrate /
collector

\rightarrow Death in 7yr of Marriage

• DOWRY DEATH \Rightarrow 304(B) I.P.C

\hookrightarrow Punishment \Rightarrow 7 Yr - L.I. **

• DEMANDING DOWRY \Rightarrow Dowry Prohibition act; 1961

\hookrightarrow 5 Yrs + 15000/- + Return the dowry = Punishment

• EXHUMATION \Rightarrow Digging out the dead body

• Early Morning hours

• No time Limit (can be done at Any time after death)

• Preserve about 500 gm of earth in contact w body from 6 different site



\Rightarrow where the Poison diffuses the soil into the body

\downarrow
P.M. IMBIBITION (M/c \Rightarrow As Poisoning)

③

IMPERSONATION

1. 2nd CLASS JUDICIAL
MAGISTRATE

5000/-

1 yr

2. 1st CLASS JUDICIAL
MAGISTRATE

10,000/-

3 yr

3. CHIEF JUDICIAL
MAGISTRATE

No Limit

7yr

1. ASSISTANT SESSION COURT

11

104r (8)

2. SESSION COURT

18

L.I. / Death sentence (Q)

Confirmed by

→ Highest court of state

6. Lowest court who commute the decision? \Rightarrow High court.

Q. Who will grant the Amnesty? \Rightarrow President of India

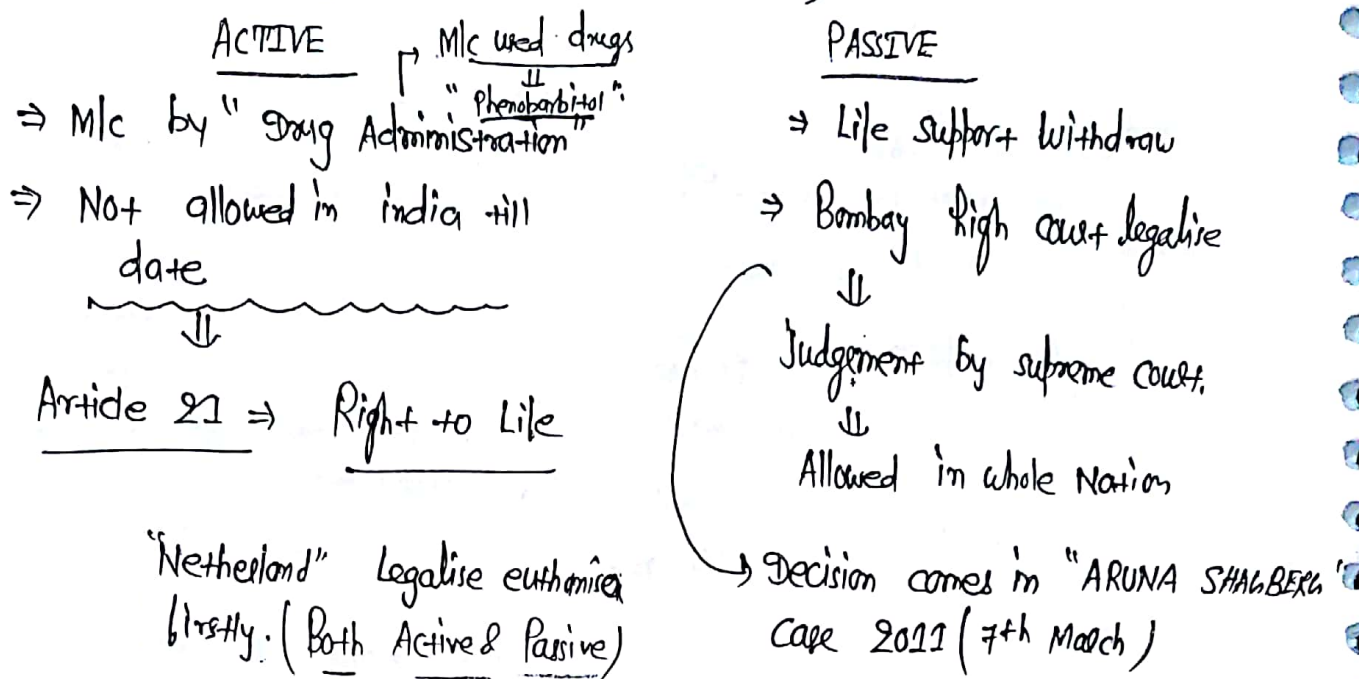
Full Pardon (पूरा माफ)

High court \Rightarrow Law of State

Supreme court \Rightarrow Law of Nation

Q. Lowest court to imprison Max^m for 10yr \Rightarrow Assistant session court
A. " " " " " " " " \Rightarrow session court

EUTHANSIA / MERCY KILLING



Euthansia May be :-

voluntary

- Patient wishes

Non-voluntary

→ Patient in coma

Involuntary

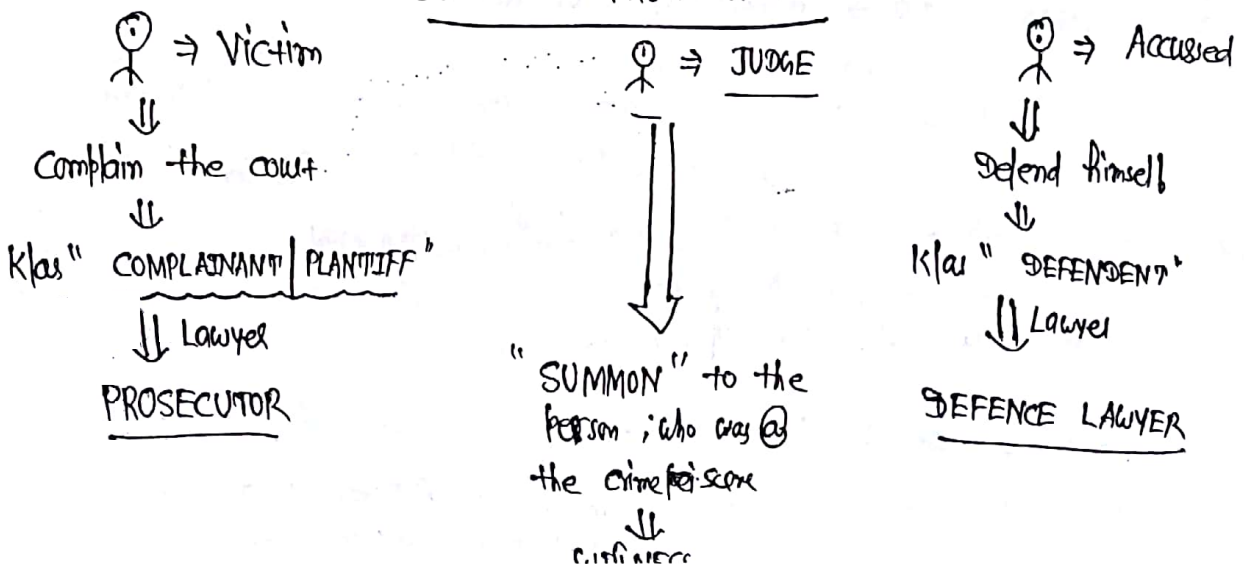
→ No patient (Pt. don't want to die; doctor say u r harmful to country, should die)

⇒ All three are Not allowed in India

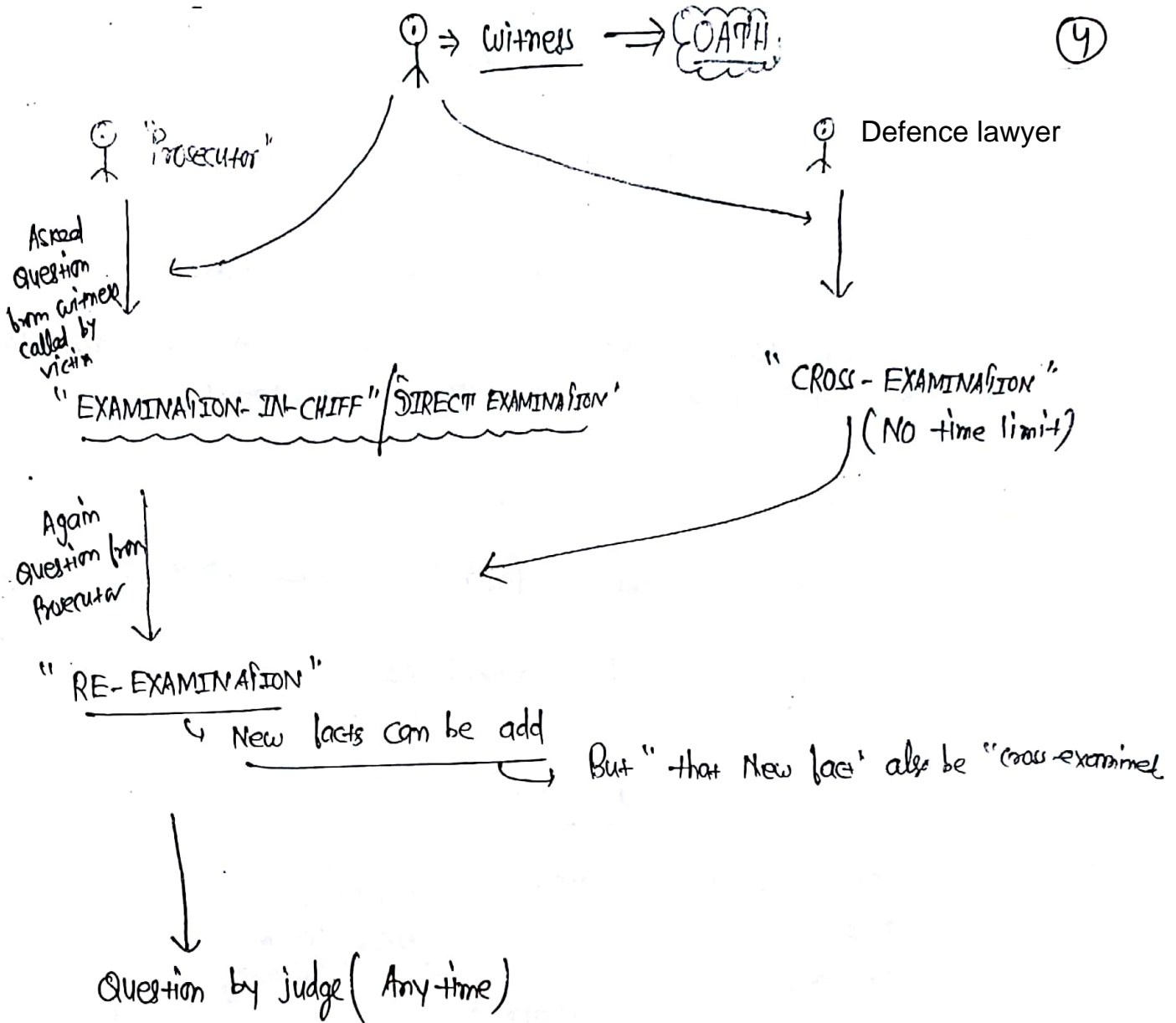
- Why Euthansia is Not Allowed? CONSTITUTION

Article 21: Fundamental Right: "Right to Life"

COURT PROCEDURE



④



* When witness called by "Defense Lawyer" then cross-examination done by Plaintiff; Re-examination / Examination-in chief by defence Lawyer

* LEADING QUESTIONS \Rightarrow sec 141 \Rightarrow In cross-examination

\hookrightarrow Answer is in Yes/No.

\hookrightarrow Also Necessary in a wound certificate; A Medical certificate & a postmortem certificate (u/03).

* Regarding OATH \Rightarrow Out Oath evidence can't be recorded.

≥ 12 yr \Rightarrow Take oath

* False evidence under oath \Rightarrow "PERJURY"

\hookrightarrow sec. 191 I.P.C (definition)
 \hookrightarrow Punishment \Rightarrow 193 I.P.C (u/04)

SUMMON (S. 61-69 Cr.P.C.)

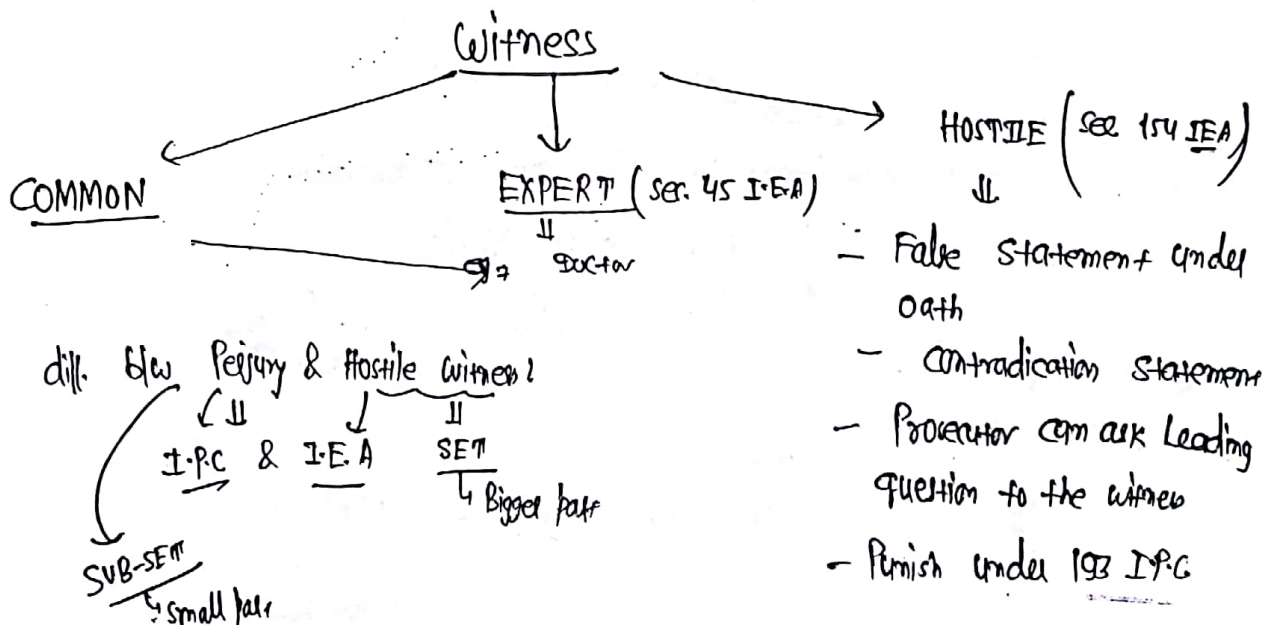
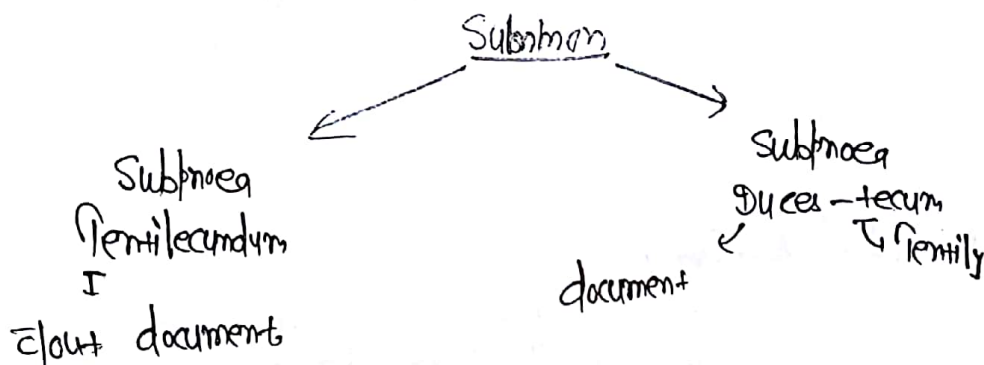
klas " SUBPOENA " Under Penalty

Both civil & criminal can Punishment

Q. Higher court always have priorities than lower court; No matter what is the case "civil/criminal".

CONDUCT MONEY \Rightarrow Money given to attended summon in civil cases.

DIET MONEY \Rightarrow In criminal cases



Dying Declaration (Sec 32 I.E.A)

(5)

- Circumstances leading to death (Statement talking about)
- No oath
- Anyone can Record; Best Recorded by

↓

(Magistrate > Doctor > Police > Civilian)

↓

all should Read out @ Court; if individual gave dying declaration in front of all.

- if the patient survive; then it has "CORROBORATIVE VALUE"
- Role of Doctor ⇒ COMPOS MENTIS (Pt. is fit for statement)

Dying Deposition

- Witness gave Statement; whole court comes @ Hospital

↓

b/c "leading questions" allowed

Single best answer; who makes it better than dying declaration

Oath
Cross-examination
Re-examination
ETC

- Not practice in India

- Dying deposition > Dying declaration

Q. ♀ died 21m 4 years under suspicious circumstances: Autopsy?

Ⓐ 304; Ⓑ 302; Ⓒ 174 Cr.P.C Ⓓ 176 Cr.P.C

Q. Power to Recall witness? Cr.P.C 311

Q. Evidence Recording in previous proceeding is relevant in subsequent proceeding?
S. 33 I.E.A. (Same Recording is Relevant in future proceeding).

NEGLIGENCE | PROFESSIONAL NEGLIGENCE

PROFESSIONAL MALPRACTICE



Fined / Prison

Case would be decided by court

Civil
(tort)

- Any Negligence that
can be compensated by
Money.

criminal



- Gross Negligence

- decide by supreme court of india

- illegal

- Gross inattention toward
patient.

- Negligence that can't be compensated
by Money.

4 D's ⇒

① DUTY; - Pt - Doctor Relation

② DERELICTION; - You don't follow standard

③ DIRECT CAUSATION; - Cause Harm (Direct)

④ DAMAGE.

* If Doctor is Negligent; He is punished Under :-

304A I.P.C ⇒ Negligent causing → Death
2yr ± Fine

337 I.P.C ⇒ Negligent causing → Hurt
6 months ± Fine

338 I.P.C ⇒ Negligent causing → Grievous Hurt
2yr ± Fine

Sec 269 IPC \Rightarrow Negligent Regarding infectious disease
6 Months \pm Fine

Sec 270 IPC \Rightarrow Malignant Act Regarding infectious disease
2 Yr \pm Fine
With Intention

⑥

* Defences available to a doctor in a Negligence \Rightarrow

① Corporate Negligence \Rightarrow Hospital has to provide
 $\left\{ \begin{array}{l} \rightarrow \text{Infrastructure} \\ \rightarrow \text{Manpower} \end{array} \right\} \text{ (X) } \rightarrow \text{If Not: Hospital is Negligent}$

② Products Liability \Rightarrow Manufacturer Negligence for his product.

③ Error of Judgement \Rightarrow You decide to go in the interest of Patient

④ Therapeutic Misadventure \Rightarrow Idiosyncratic Rxn to Drug
 \hookrightarrow अपनी तरफ से सबकुछ की गति; but something Not controllable, or Not in My Hand

⑤ Res Judicata / Doctrine of double Jeopardy \Rightarrow
 \hookrightarrow एक ही चीज के लिए दो बार No Punishment,
~~Rest~~ the decision Rest.

⑥ Res Indica - Limitation period \sim 2 Yrs.
 \hookrightarrow If I am Negligent; then Pt can file the case upto 2 Yrs.

* All Above defence can use @ civil / criminal both negligence

⑦ Contributory Negligence \Rightarrow Defence only in civil cases
 \hookrightarrow Both Patient / Doctor are responsible

Two ways to determine : Who is More Negligent

① Last clear chance

Doctrine ↳ if the doctor fails to prevent damage resulting from the negligent act of the patient; even after getting clear time, he can't plead contributory negligence in civil case

↓
Doctor is Responsible

② Avoidable consequence

Rule

↓
Patient is Responsible

ATMC May 15
Q.

Pt. comes to you w/ large laceration. You did Regular dressing. Pt. didn't give much care. During follow-up; patient was repeatedly told to get the dressing done timely but patient didn't do the dressing himself, saying that he was busy. Finally the wound enlarged & underlying bone developed osteomyelitis. Which of the following statement is true regarding above mention situation?

- a) Doctor is guilty under "Last clear chance" Doctrine
- b) Doctor is not guilty under "contributory negligence"
- c) Doctor is punishable under avoidable negligence
- d) Doctor is guilty as he prescribed wrong medicines

Terms in Negligence :- (I) RES IPSA LOQUITUR :-

↓
Fact speaks itself.

(II) VICARIOUS LIABILITY / RESPONDANT SUPERIOR / CAPTAIN OF SHIP DOCTRINE

* applicable only in civil negligence Not in criminal cases

Let the superior Reply

the employer is responsible for negligence of employee
↳ Hospital Responsible (vicarious Liability)

"HOD Medicine" (Captain)
"Intern" (employee).

DOCTRINE OF DEEP POCKETS :- उसको पकड़ो जिसका pocket (Money) बड़ा हो

BORROWED SERVANT DOCTRINE :-

III

NOVUS ACTUS INTERVENIENS
↓ ↓ ↓
New Act Intervening.

⇒ Defence very commonly seen in Homicide
↓
Usually Not accepted by the court;
Unless the doctor is confirmed
Negligent.

Head injury to the patient → Doctor came → Septicemia → Death

DNB May 2012

Compoundable offenses ⇒ There can be out of court settlements.

eg ⇒ Theft.

* Non-compoundable offenses ⇒ These offenses can't be out of court settlements.

eg ⇒ Murder

* SUMMON : Issued Under (S. 61-69 Cr.P.C.)

{ (Not attended)

2nd summon : (Again Not attended)

↓
NOTICE (S. 350 Cr.P.C.)
(Show cause Notice)
↓ Again Not attend.

Bailable warrant

↓
Non-Bailable warrant

} Fine + Imprisonment

eg ⇒ Son's Marriage (social obligation)
Heart attack

Valid Reason
(No Punishment)

Invalid Reason
(Punishment : Rs 100/-)

Q. Burn Pt.; ♀ by husband; treated ⇒ she goes into O.R. for plastic Sx - Anaesthetics give Sch → Pt. dies on Sx table; who is Responsible?

① Anaesthesiology

② Surgeon

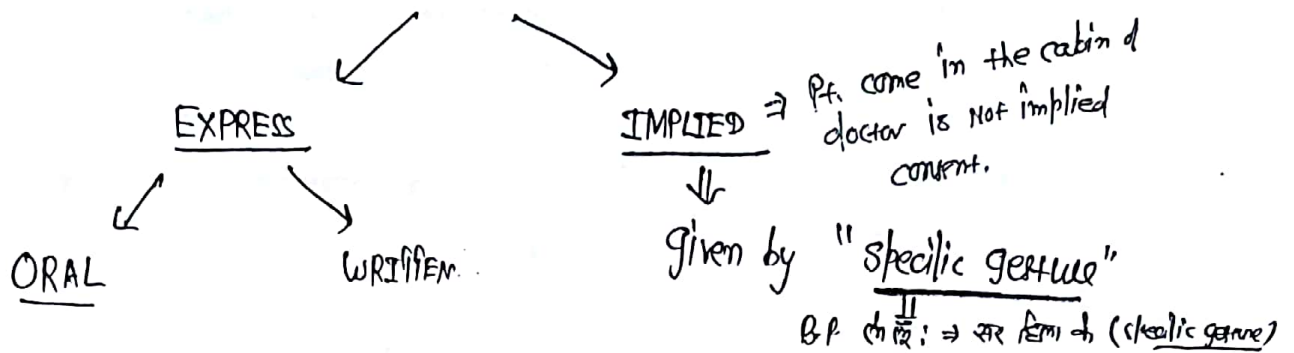
③ Husband

④ Surgeon d/t vicarious Liability

⇒ Pt. is burnt case; ∴ Sch is Not preferred; also Anaesthesiologist is Not controlled by Surgeon.

CONSENT

- Sec. 13 - Indian Contract Act, 1872
- Voluntarily Agreement



- All the consent is valid in court of Law.
- Consent should always be "Informed"

- You are telling Full disclosure to patient.
- except ⇒ "Therapeutic privileged"

* BLANKET CONSENT ⇒ Invalid in India

↳ Consent taken for everything together

* Consent taken b/c of Assault ⇒ 351 I.P.C.

↳ except ⇒ protected under 92 I.P.C.

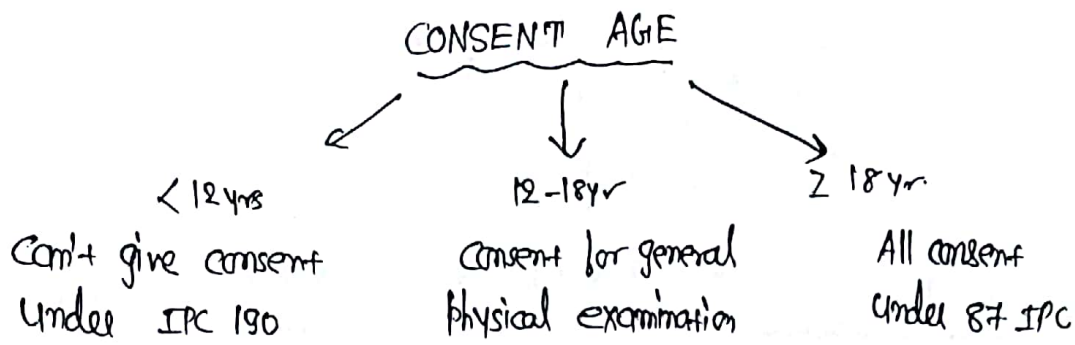
↳ Like saving Rx

↳ Consent can't obtain w/out Reasonable delay

eg ⇒ RTA → Profusely bleeding → conscious; oriented → give No consent

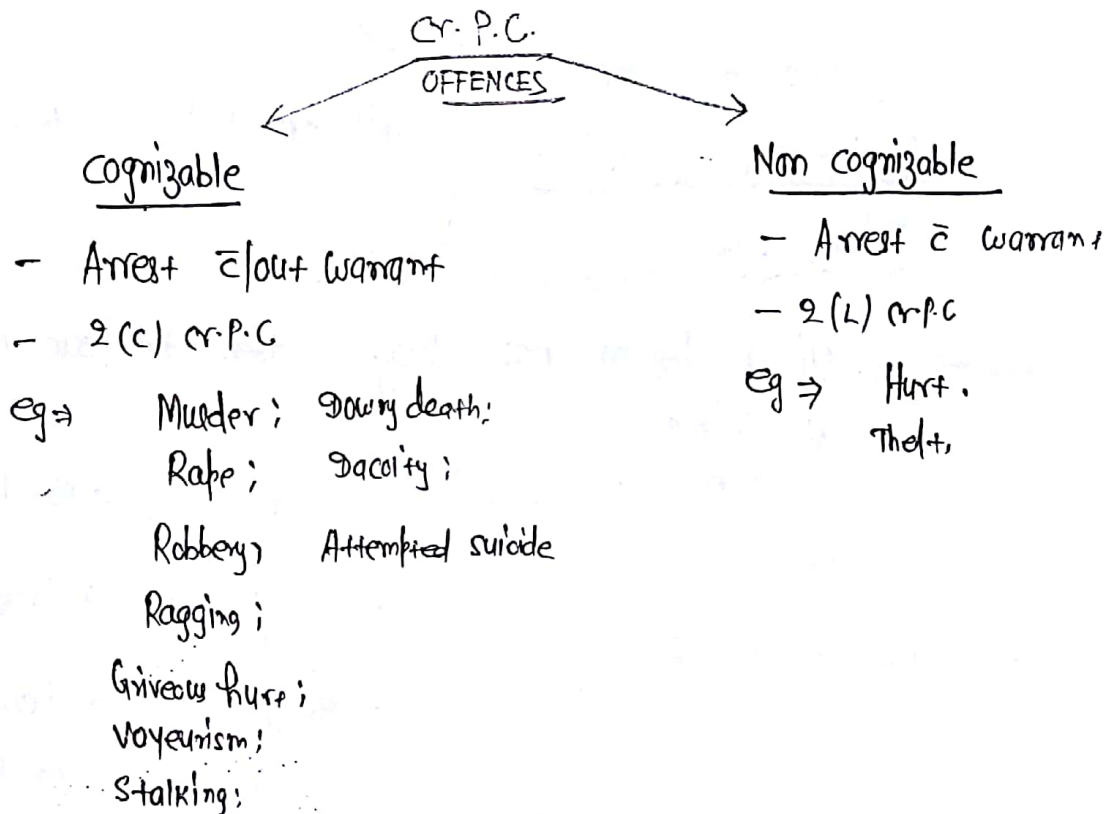
↓

Informed Refusal ↳ No Rx.



91 I.P.C ⇒ Consent for illegal Act is Invalid
 Eg ⇒ Murder & Rape consent; Not valid (illegal)

SECTIONS



I.P.C

- Sec. 44 ⇒ Injury (Definition)

- Sec. 46 ⇒ Death (Definition)

- Sec. 82 ⇒ Child < 7yrs is Not Responsible

Railways Act : child > 5yrs is Responsible

6yr old: Punishable for Pulling chain; Not Responsible for killing

- Sec. 84 ⇒ Criminal Responsibility of Insane

(Mc Naughten's Rule) / Legal test / Right or Wrong test

CURREN'S RULE

DURHAM'S RULE

Irretrievable impulse test

American Law Institute Rule

Federal Law

(X) Not applicable in India

→ all are Rule for Insane

⇒ If a person has Insight; then the person is Responsible for crime

eg ⇒ Psychosis → Insight → (X) ⇒ Not Responsible

Neurosis → Insight → (✓) ⇒ Responsible

Kleptomania → Insight → (✓) ⇒ Responsible

Delirium → Insight → (X) ⇒ Not Responsible

Automatism → Not Responsible

Sleep walking → Not Responsible

Hypnosis → Responsible

* DURHAM'S RULE ⇒ Accused is Not Responsible for the act; if his acts Resulted from Mental disease or defect.

* CURREN'S RULE ⇒ A Person is not Responsible; if @ the time of committing the crime; he didn't have capacity to Realise his conduct

Sec 85

⇒

Act under Involuntary Intoxication

↓

Person is Not Responsible

(9)

Sec. 86 ⇒

Act under Voluntary Intoxication

↓

Person is Responsible

* if crime done in Delirium tremens → dlt Alcohol withdrawal.

↓

Not Responsible

Sec. 88 ⇒ Act Not intended to cause death; but can cause death or grievous hurt; done by consent in good faith & for the benefit of that person eg ⇒ Death of pt caused by surgery done by Surgeon

Sec. 197 ⇒

Issuing False certificate

↓

Punish ≤ 7yr

Penal offence ⇒ only Medical Council; Not Court.

Sec 201 ⇒

causing disappearance of evidence

↓

Punishment = 2yr + Fine

eg ⇒

Embalming without Death certificate

↓

Punishable under 201.

- once a death certificate is approved it means person had already Post-Mortem

- Embalming agent ⇒ Methanol;

Formalin;

Phenol;

Glycerine etc

- Unclaimed Body ⇒ after 48 hrs

Sec. 299 ⇒ Culpable homicide (definition)

Sec. 300 ⇒ Murder definition

Sec. 302 ⇒ Murder (Punishment)

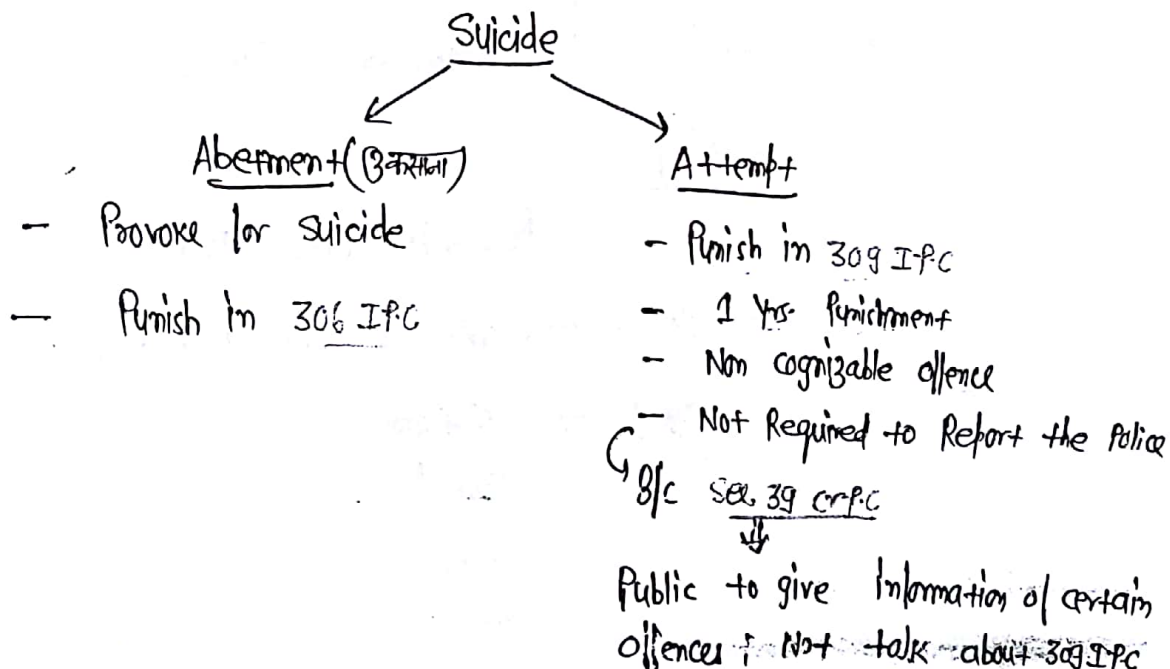
Sec. 304 ⇒ Culpable Homicide (Punishment)

MURDER ⇒ Intention to kill
CULPABLE HOMICIDE ⇒ Death to be happen

} Difference
"Gravity of Killing"

Sec. 307 ⇒ ATTEMPT TO MURDER ⇒ Intention High; Dead not happen.
↳ 3yr Imprisonment + Fine

Sec. 308 ⇒ ATTEMPT TO CULPABLE HOMICIDE ⇒ Intention Less; Dead not happen.
↳ 3yr Imprisonment + Fine



* Gravity of Killing is determined by Nature of actions of Accused ⇒

eg ⇒ Stab once & Run Away : chance of survival! Culpable Homicide

Stab so Many times : No chance of survival : Murder

expulsion of product of conception before full term according to Law

Sec 312 : Abortion w consent } Death ♀ (Death during
 ↓ Abortion)
Sec. 313 : Abortion w/out consent } 314 I.P.C

Sec. 313 : Abortion \bar{c} out consent

sec. 315 : Infanticide

Sec-316 : causing death of a quick Unborn child; while trying to kill Mother: (culpable Homicide)

• quickening in primi \Rightarrow 20 weeks

quicken in Multi 16-18 wks

Sec. 317 : Abandoning a child < 12 yrs of Age

Sec 318 ' Concealment of child

↳ Any birth/death should be reported ≥ 1 day.

Sec 319 : HURT (DEFINITION)

Sec 320 : GRAVEOUS HURT (DEFINITION) : 8 clauses :-

① Emasculation / Impotence (Applicable only to Males);

⑧ Permanent privation of sight of either eye
(57/104/1004)

Grievance Not Healing itself; do Sx.

③ Permanent privation of hearing of either ear

⑨ Privation of Member/joint [Anything that has its own functions]
Member of body.

(E) Permanent destruction / Impairment of Power of Member / Joint

(F) Permanent disfigurement of Head & face

Ex. 3. 60yr old & 20yr Model: change of Head? No one is given but

Ex: boy's old & sister had, have of Head

(H) Any Hurt that endangers life or causes severe bodily pain for 20 days or unable to follow ordinary Pursuits
↓
Prolesion is Not ordinary Pursuits.

Any injury; where death can happen

DANGEROUS INJURY ⇒ Any injury; which causes threaten to Life
↓
Part of Grievous Hurt.

* Sec. 323 ⇒ Punishment for voluntarily causing Hurt; Punish = 1yr

* Sec 324 ⇒ Punishment for voluntarily causing Hurt by dangerous weapons

↓
Punishment ⇒ 3yrs.

* Sec. 325 ⇒ Punishment for voluntarily causing Grievous Hurt
Punishment ⇒ 7yr

* Sec. 326 ⇒ Punishment for voluntarily causing Grievous Hurt by dangerous weapons; Punishment = 10yr

* Sec. 334 ⇒ Punishment for voluntarily causing Hurt on Provocation
Punishment ⇒ 1month + 500/-

* Sec 335 ⇒ Punishment for Grievous hurt on provocation
Punishment ⇒ 4yr + 2000/-

Dangerous weapons ⇒ Shooting / stabbing / cutting

X
(Not dangerous) Stick;
Bruise
on Provocation
→ Y (Bruise)
↓
Hurt

⇒ {Sec 334}

voluntarily causing
Hurt on provocation.

X → Y
 (dangerous weapon) Knife
 Abrasion on provocation

⇒

Sec 334

(11)

voluntarily causing hurt on provocation

if provocation is removed then 323 & 324 applicable.

Q. Knife # Provocation } 326 10yr } 4yr + 2,000/-

Q. AIIMS

X → Y
 Shoots;
 Intention to kill;
 thigh → Bleeding

- | | | |
|--------|--------|--------|
| 1. 324 | 1. 324 | 1. 324 |
| 2. 326 | 2. 326 | 2. 326 |
| 3. 335 | 3. 335 | 3. 307 |
| 4. 304 | 4. 308 | 4. 308 |

Sec. 354 : Assault to outrage the Modesty of female
 by force
Insult to outrage the Modesty of female
 by words (obscene comments)
 see 509 :

Amendment in 2013 :-

- 354(A) :- Sexual Harassment
- 354(B) :- Disobing a ♀ in Public
- 354(C) :- Voyeurism
- 354(D) :- Stalking

Physical
 (पीट करना)

Digital

↳ via WhatsApp ; email

for the 1st offence :- up to 3yr Jail (cognizable & Bailable)

for the 2nd offence :- up to 5yr Jail (cognizable & Non-Bailable)

Sexual Offences

Natural

- Intercourse is per Nature i.e. Male Intercourse & Female or vice-versa
- Penis Penetrates vagina
- eg ⇒ Rape;
- Incest - Not offence in India
- Adultery ⇒ Sec 497 IPC
↳ Male Punish

UnNatural (377 IPC)

Sexual Perservation

- Against Nature
- Men & Animal
⇓
Bestiality
- & in the same Gender
⇓
Homosexual
- Penis Penetrating Anus orifice
⇓
Sodomy
- Penis In oral orifice
⇓
Buccal coitus / sin of Gomorrah

RAPE → Sec. 375 I.P.C (Definition)
↳ 2013 Amendment
Age of consent ⇒ 18yr (Married / Unmarried)

Statutory Rape ⇒ Sexual intercourse < 18yr

♀ → Rape → (X) ⇒ Not charged in India

↳ Gang Rape → (X) ⇒ Not charged in India
↳ > 1 Person

Sec. 376 I.P.C ⇒

Rape Punishment

↳ 7yr. — Life imprisonment
↳ Rest of life

Sec. 376(A) ⇒ Death occurred

↓
Give Death
Sentence to
accused.

1. victim - Death
2. victim - Persistent vegetative state
↓
coma → artificial Brain death,

Sec 376(B) ⇒ Husband - wife without consent during separation

↓
2-7 yrs. Bailable (only bailable Rape)

Marital Rape ⇒ No Punishment in India.

↳ Husband has power to call sex after Marriage
- If you have to answer without option, No offense; then select 376B.

Sec 376(c) ⇒ Sexual Intercourse by a person in Authority

↓
Punishment ⇒ 5-10yr

Sec 376(d) ⇒ Gang Rape

↳ Punishment ⇒ 20yr - L.I.

Sec 376(E) ⇒ Death Sentence to accused if he is a Repeat offender.

Sec. 53(A) Cr.P.C ⇒

Medical examination of Rape accused

- No Need of Consent
- Request of Medical examination ≥ Sub-inspector

Sec. 164(A) Cr.P.C ⇒

Medical examination of Rape victim

- Consent Required
- for consent ≥ 12 yrs in this case
- Male/Female both doctor can examination in presence of Female attendant.
- Test ⇒
 - 1. Toluidene blue
↓
to visualize Micro-laceration

• Lugol's iodine
↓

can be used for Maxim 4 days after intercourse

Sec. 327 Cr.P.C ⇒

In "camera trial" done in Rape cases
↓

Misnomer ⇒ Limited people allowed in court,

Sec. 228(A) I.P.C ⇒

Punishment of disclosing the identity of Rape victim

↳ Punishment ⇒ 2 yrs.

UNNATURAL SEXUAL OFFENCE

(13)

Male homosexuality

Female homosexuality

Klas "Tribadism / Lesbianism"

Active

Klas "Butch / Dyke /
Bull Dyke"

Passive

Klas "Femme"

* SODOMY / BUGGERY / ANAL INTERCOURSE ⇒ "Greek Love"

ACTIVE

- Preferred children

Klas "Pedetrant / Pedophile"

PASSIVE

→ child ⇒ Klas "Catamite"

} → Act + Klas
"PEDOPHILIA"

→ if old age ⇒

* SIN OF GOMORRAH (BUCCAL COITUS) ⇒ Fellatio ⇒ Oral stimulation of Penis;

Cunnilingus ⇒ oral stimulation of female genitalia

* Feature of Habitual Passive agent :

① Lateral buttock traction test ⇒ (+)

↳ In knee/elbow position; Anal sphincter is completely Relaxed ⇒ (+)

② Tyre's sign ⇒ (+)

↳ Bluish discoloration seen around Anal Margin d/t dilatation of vessels

③ Skin tags are present;

④ Funnel shaped Anus;

⑤ Skin will be shaven.

Sexual Perversion | Paraphilia

- Sexual gratification w/out intercourse

SADISM \Rightarrow Pain \rightarrow Partner;
MASOCHISM \Rightarrow Pain \rightarrow Self
 \hookrightarrow Seen in "Autoerotic Asphyxia"
 \hookrightarrow Co-existing together \Rightarrow "BONDAGE"

FETICHISM \Rightarrow Object of desire

\hookrightarrow PARTIALISM \Rightarrow Desire for part of body.

Klismaphilia \Rightarrow pleasure by use of enema.

Urophilia / Urodonism \Rightarrow pleasure by sight / urine / making a person urinate on self.

Coprolalia / Scotophilia \Rightarrow pleasure by obscene language.

Masturbation / Ipsiastion / Onanism \Rightarrow Punishable act; if done in public; otherwise Not.

Punishable sexual Perversion

Exhibitionism \Rightarrow display of private part in public
 \hookrightarrow Under 294 I.P.C

Frotteurism \Rightarrow Rubbing against private part of unsuspecting individual in public
 \hookrightarrow Under 354 / 354(A) / 290 I.P.C

Necrophilia / Necrophilia \Rightarrow 297 I.P.C \Rightarrow Showing disrespect to a dead body
 \parallel \parallel
 Love eat
 \hookrightarrow 1yr \pm fine

Voyeurism | Scopophilia | Peeping tom \Rightarrow Pleasure by watching other people Intercourse or by watching undress (14)

\hookrightarrow Under 354(c) IPC

1st offence \Rightarrow 1-3 yr (cognizable bailable)

2nd offence \Rightarrow 3-7 yr (cognizable Non-bailable)

TRANSVESTISM / ECNONISM
II II
cross Dressing

- Individual identity himself as opposite gender
- Not Perversion - Gender Misidentity disorder
- M/c in σ .

Sec 497 : Adultery (i.e. Voluntary sexual intercourse b/w a Married Person & a Person; Married or Not; other than his/her spouse).
Sec 498(A) : Cruelty: on a ♀ by husband / Relatives
 \hookrightarrow Not on σ .

Q. $\text{♀} \rightarrow$ 4 yrs under \rightarrow ♀ Autopsy?
Marriage

① 304 B IPC

③ 174 IPC

② 302 IPC

④ 176 IPC

Q. Power to Recall a witness?
Under Cr.P.C (311)

Q. Evidence Recorded in lower court; is applicable in higher court?
Under I.E.A. (33)

JUVENILE JUSTICE ACT, 2000

Juvenile; child; Minor \Rightarrow < 18 yr.

Juvenile In crime \Rightarrow Juvenile - In-conflict w/ Law (JCL)

That means any juvenile offender / juvenile delinquent. He is called "JCL" & is never sentenced to death / imprisonment.

Juvenile Justice Board

- \rightarrow ① 1st class Judicial Magistrate \Rightarrow Principle Magistrate (♂ or ♀)
- \rightarrow ② 2 NGo Member

\downarrow
1 \rightarrow ♀ M.J.J.

Reformatory / BORSTAL

\hookrightarrow Age upto 21 yrs Maxm

Maxm Punishment \rightarrow 3 yrs.

- Amended 2015 ; \Rightarrow Maxm Punishment \Rightarrow Death Sentence

Age of Juvenile depends upon crime committed,
depends upon crime

Age		crime
< 18 yrs	\leftarrow	① Petty
< 18 yrs	\leftarrow	② Serious
< 16 yrs	\leftarrow	③ Heinous

Petty crime Punishment \Rightarrow ≤ 3 yr - eg \rightarrow 323 IPC
Severe \Rightarrow 3 yr - 7 yr - eg \rightarrow 324, 342K
Heinous \Rightarrow ≥ 7 yr

TRANSPLANTATION OF HUMAN ORGAN & TISSUE ACT, 2011

(15)

Brain stem death

• Definition \Rightarrow Section 2(9):

• Criteria \Rightarrow Minimally

Team of Doctors:

① Hospital in charge (HIC):

② Specialist appointed by HIC:

③ Independent Neurologist/Neurosurgeon

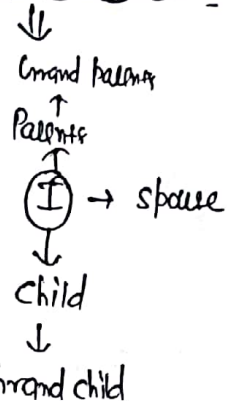
④ Treating Doctor

All are Not part of operating Team

Live individual

• Donate d/t Money Mainly.

• NEXT OF KIN



• Punishment \Rightarrow to Doctor

10 Yr + 20 Lac to 1 crore

• MCI can Remove for 3 Yr + 1st offence
Permanent + 2nd offence

INDIAN LUNACY ACT, 1912

- Replaced by Mental Health act 1987

- Replaced by Mental health care act, 2017

- ① ECT \rightarrow pre-treated \bar{c} Muscle Relaxant.

ECT in child \rightarrow Permission from Medical Review Board (MRB)

- ② Advance directions are allowed for a future Medical illness
↓
Override \Rightarrow MRB

③ 309 I.P.C \Rightarrow Non-cognizable offences.

Medical Review Board

- Peoples in MRB \Rightarrow
- ① District Judge
 - ② Representative of District collector
 - ③ 2 Doctor

Psychiatrist
Any Registered Practitioner
 - ④ 2 People from NGO

if Doctor violates this Law

\hookrightarrow Punishment \Rightarrow 6 month \pm 10,000 - 1st offence
2 yr \pm 50,000 - 5 lac - 2nd offence

Consumer Protection Act, 1987

We can file the case at. \rightarrow ① District forum;

② State commission;

③ National commission;

District Forum

3 Member

Jurisdiction

Case value upto < 20 lakh

State commission

3 Member

20 lakh - 1 crore

National commission

5 Member

> 1 crore

Not happy

\longrightarrow

State Not happy

\longrightarrow

National Not happy

\downarrow
Go to Supreme Court,

- Limitation period for filing a case in 2 yrs.
- case decided in 90 days.
- After decision appeal in 30 days.

(16)

CORPUS DELICTI - IDENTIFICATION
Body of offense / essence of crime

(I) DETERMINE SPECIES → Precipitation test
↳ Species identification test.

(II) DETERMINE RACE → (A) SKULL →

CEPHALIC INDEX →
$$\frac{\text{Maximum Breadth of skull}}{\text{Maximum Length of skull}} \times 100$$

→ Long-headed
DOLICOCEPHALIC
→ short-headed
BRACHYCEPHALIC

Cephalic Index ⇒ 70-79 %

eg ⇒ Pure Aryans,
Negro

MESATICEPHALIC

75-80 %

Indians

BRACHYCEPHALIC

80-85 %

Mongoid

(B) DENTITION ⇒ Mongoid ⇒

- i) Para dentism (Bull tooth);
- ii) Shovel shape incisor
- iii) Absent 3rd molar
- iv) Enamel pearls

Caucosoids → i) Pointed canine roots;
 ii) Carabelli's cusp
 ↳ extra cusp on Maxillary 1st Molar

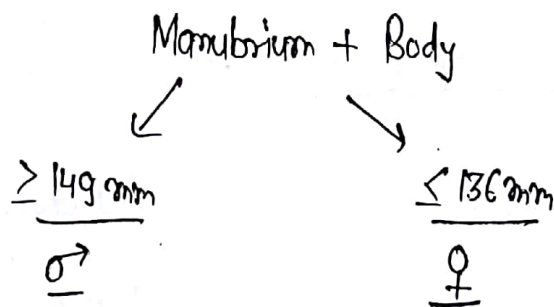
Negro → i) Large teeth
 ii) Multiple cusp.

③ DETERMINE GENDER → Best from Pelvis

Pelvis → 95% (Best)
 Skull → 90%
 Long bones → 80%
 Pelvis + skull → 98%
 All bones → 100%

Sternum

i) ASHLEY'S RULE ⇒



ii) Sternal index ⇒

♀ 0.54 ♂ 0.46

Manubrium
Body

④ DETERMINE STATURE ⇒ Stature ⇒ Bony Length of Individual.

Length of bone is Measured by ⇒ "Hepburn's Osteometric Board"

Length of bone × M.F ⇒ Stature

<u>BONE</u>		<u>M.F</u>
FEMUR	⇒	3.6
TIBIA	⇒	4.4
FIBULA	⇒	4.4
HUMERUS	⇒	5.3
ULNA	⇒	6
RADIUS	⇒	6.4

This Multiplication factor
is k/as "KARL PEARSON COEFFICIENT".

* <u>Bone</u>		<u>1. of Height</u>
• <u>Humerus</u>	⇒	20
• <u>Tibia</u>	⇒	22
• <u>Femur</u>	⇒	27
• <u>Spine</u>	⇒	35

→ 2nd Method to determine status ⇒ "Trotter & Glaser Method"

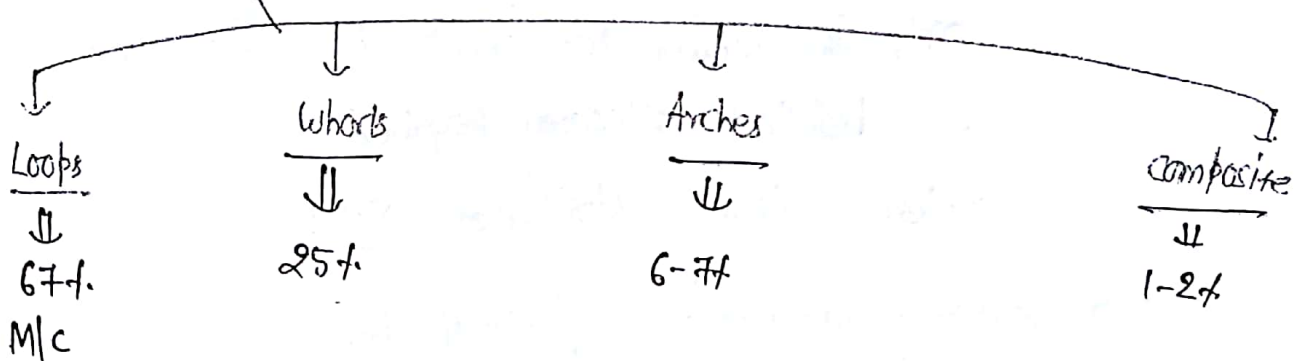
⑤

Discovered by ⇒ Sir William Herschel / Sir Francis Galton
• DNA Fingerprinting Discovered by ⇒ Sir Alec Jeffreys

Finger printing / Dactylography / Dermatogly

⑥ Routine F/P ⇒ Better than digital F/P
↳ even different in identical twins

↓
Galton's Rule



- 2 Set of F/P Need to identify.
- 8 points should Match in India; varies ak to country
↳ No Matter complete / Partial F/P.
- Little finger print — Both — (X) Not taken
- Dermis — depth — 0.6mm

- Finger print absent in - Leprosy ;
Irradiation & electrical injury.

- CALLIGRAPHY → Study of Hand writing.
- POROSCOPY → Study of pores on epidermal Ridges
 - Primarily used in partial finger print
 - Developed by "LOCARD EXCHANGE PRINCIPLE"

- PALATOPRINT → Taken from Ant. 1/3rd of Palate
↳ Rugoscopy

- CHEILOSCOPY → Lip prints
 - Tsuchi hashii classification
↳ 6 types

- ANTHROMETRY → By " BERTILLON SYSTEM " ^{DNB 12}
↳ Body Measurement.

- ↳ Mostly axial / Lt. side except → one from Rt. ear
- Only in Adults (Not for child)
- No biological specimen Required
- earliest criminal identification system.

- SUPERIMPOSITION TECHNIQUE → Skull bone
↳ One test is said better in this technique

- IDENTIFICATION BY AGE →
 - ① By secondary sexual character
 - ② By dentition
 - ③ By ossification centre

2° sexual character

- Tanner's Sexual
Maturity Rating

⇓

In Pediatrics

Ossification centre

By dentition

- 18+ to ossify

↳ clavicle (5th week gnl)

- 2nd Mandible → 6th week gnl

- Calcaneum - 5th week d gnl

- Talus - 7th week d gnl

- Lower end of Femur - 9th week d gnl (just before birth)

- Ossification centre @ birth

- Cuboid

- 4th part of body of Sternum

- Upper end of tibia

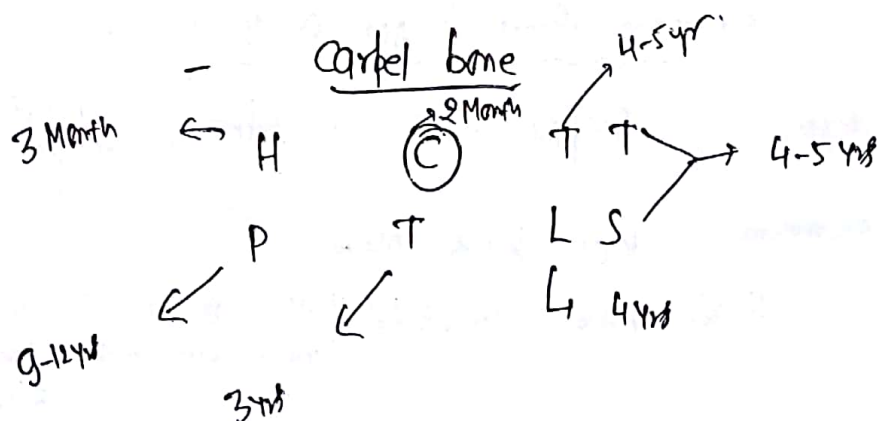
Ossification centre @ 1yr

Head of Humerus / Femur

- Lower end tibia / Fibula

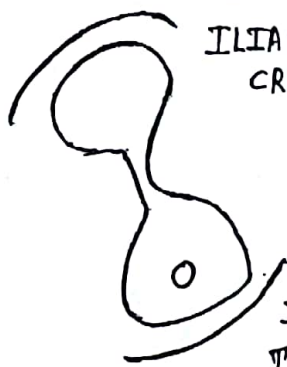
- Capitulum

Carpel bone



Ossification centres Around Hip

(A) \Rightarrow Appearance
(F) \Rightarrow Fusion



ILIAC CREST \Rightarrow

(A) \Rightarrow 14yr
(F) \Rightarrow 18-20yr

♀

13yr

17-19yr

ISCHEAL TUBEROSITY \Rightarrow

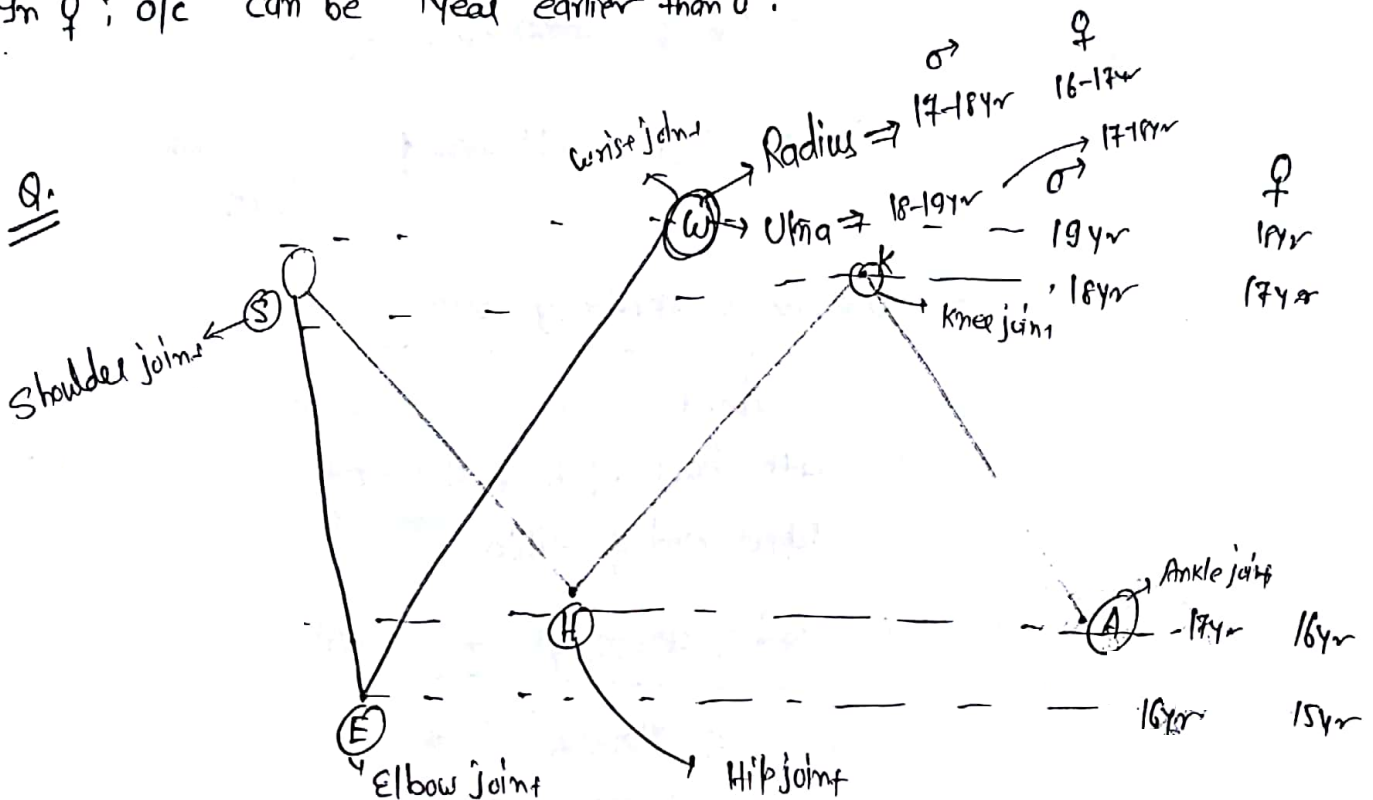
(A) \Rightarrow 16yr
(F) \Rightarrow 20-21yr

15yr

19-20yr

In ♀; o/c can be 1 year earlier than ♂.

Q.



DETERMINATION OF AGE BY DENTITION

- i) Stack's Method \Rightarrow Wt/Ht tooth \Rightarrow Infants (Age of infants can be known from height & weight of erupting teeth)
- ii) Boyd's Incremental Line \Rightarrow K/au "Boyd's Method".
 Boyd's enamel: In children (there is a line @ birth on enamel of tooth & with res age, more lines are added)
- iii) Eruption
- iv) Wustasson Method \Rightarrow Determines @ age > 21yr.

Eruption Tooth
Temporary → I C PM
 2 1 0 2 = 20

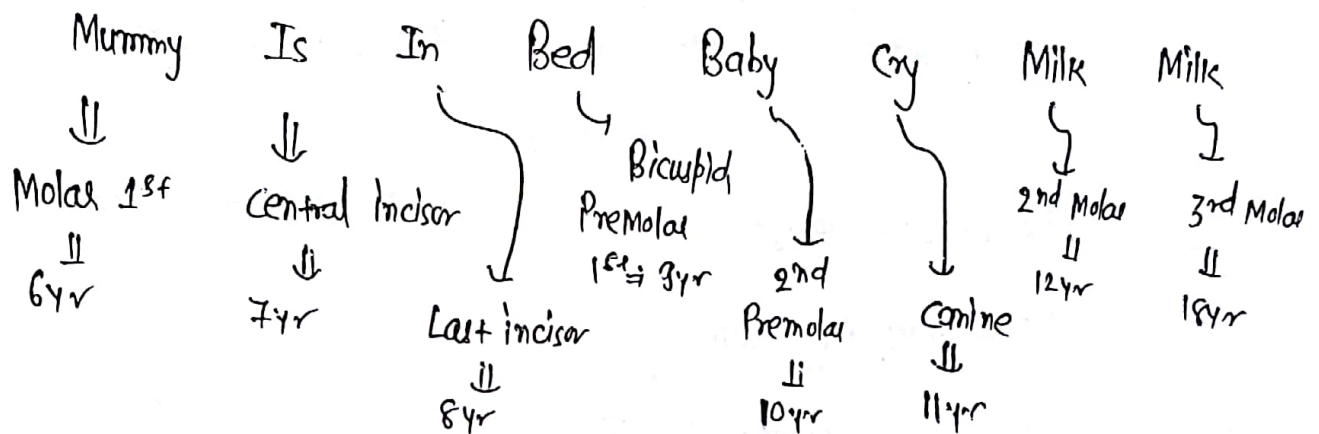
Permanent → 2 1 2 3 = 32 total

1st temporary tooth to appear - Lower central incisor

Last temporary tooth to appear = 2nd Molar.

1st Permanent tooth to appear - Molar
 4 6 yr

Permanent dentition ⇒



Mixed Dentition (6-12 yr) ⇒ Both Temporary + Permanent

30 months (2½ yr) ⇒ teeth = 20 in No.

① 6 yr + 4 ⇒ teeth = 24 in No.

② 12 yr + 4 ⇒ teeth = 28 in No.

③ 18 yr + 4 ⇒ teeth = 32 in No.

* No. of Permanent teeth ⇒ (Age - 5) × 4 ^{1st apply}

if Ans. Not comes from this; then apply
 (Age - 6) × 4) + 2nd apply

M/c extra permanent tooth \Rightarrow Maxillary central incisor

* GUSTAFSON METHOD \Rightarrow Used in > 25 yr age

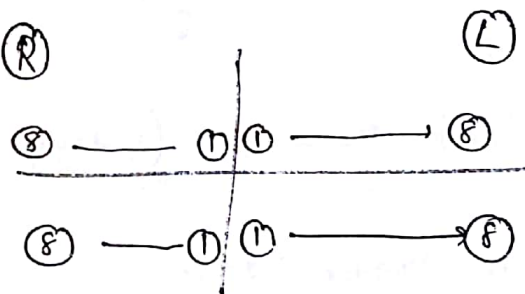
- i) Attrition : Top part (Grinding part)
 - ii) Parodontosis : Recession of gingiva;
 - iii) 20 dentine : 2nd most reliable parameter; Pulp cavity Material
 - iv) Cementum opposition : Root part
 - v) Root Resorption : Least Reliable Parameter
 - vi) Root transparency : Most Reliable parameter
- Anterior teeth \gg Posterior teeth for determination
(I/C \gg P/M).

DENTAL NOTATION METHOD

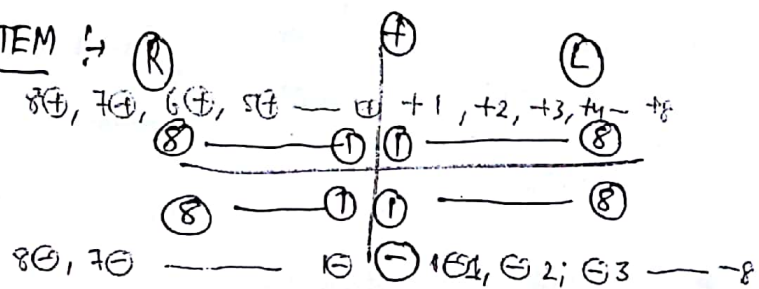
I. UNIVERSAL SYSTEM

II. DIAGRAMMATIC SYSTEM

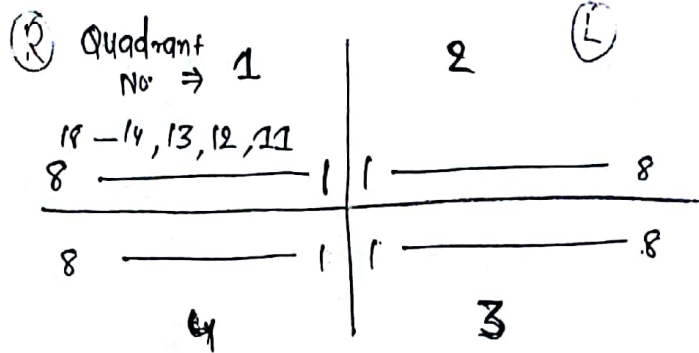
III. PALMER'S SYSTEM \Rightarrow (R) (L)



IV. HADERNUP SYSTEM \Rightarrow (R) (L)

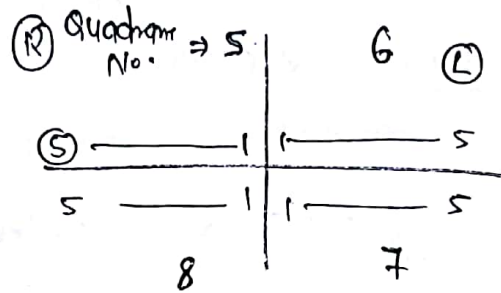


V. FDI SYSTEM (Federation Dentale Internationale) \Rightarrow 2 digit Notation



Quadrant No. \Rightarrow 1, 2, 3, 4

Used for Permanent Dentition

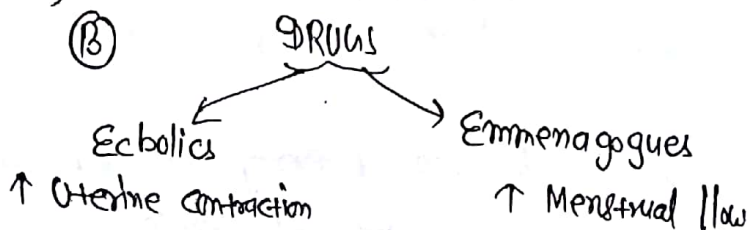


Temporary dentition

* Miles Method \Rightarrow Age can be known by change of Root transparency.

* METHOD OF CRIMINAL ABORTION \Rightarrow

(A) Abortion Stick \Rightarrow Irritant + Plant + Calotropis
 \downarrow
 Reflex uterine contraction



(C) M/c complication of criminal Abortion \Rightarrow Hemorrhage
 M/c immediate cause of death \Rightarrow Shock
 M/c delayed cause of death \Rightarrow sepsis

416 Cr.P.C \Rightarrow Commutation of Death Sentence of ♀ Lady.

* if a ♀ Lady; she can't be hanged during/ after delivery.

Death sentence will automatically change to Life Imprisonment for that offence

* Difference b/w Male & Female Pelvis \Rightarrow

♀	♂
• Wide Inlet	• Heart Shaped Inlet
• Shallow cavity	• Deep cavity
• Wide outlet	• Narrow outlet
↳ Sub-Pubic Angle obtusatory	↳ Anterverted
↳ Ischial tuberosity are elevated	↳ Inverted.
• Chiotic Line	Chiotic Line
↳ Pelvic component > Sciatic component	↳ Sciatic component > Pelvic component.
• Coccyx \Rightarrow More Movable	Less Movable
• Preauricular <u>sulcus</u> \Rightarrow More; frequent, broad & deep	Not frequent; Narrow; shallow
↓ Attachment of Anterior Sacroiliac Ligament.	
• Ileo-pectineal <u>Line</u> \Rightarrow Rounded & Smooth	well marked & Rough

* Stature (Body Length) is More in \Rightarrow ① Lying;
 ↓
 n of Large joints;
 ② After death d/t Loss of Muscle tone;

* Stature is Less in \Rightarrow ① Afternoon & evening d/t less elasticity of
 intervertebral disc & Longitudinal vertebral Muscle;
 ② Both Malnutrition & Advancing age

* 1st ever finger print Bureau in the world \Rightarrow Calcutta

* Types of Fingerprinting : 1. Latent \Rightarrow which can't be seen w/ Naked eye;

2. Visible \Rightarrow can be seen w/ Naked eye;

3. Plastic \Rightarrow type of visible finger print which is seen in plastic substance (like wax etc.)

4. Chance \Rightarrow Not a type of finger print; used for crime investigation.

* In child: Foot print is taken \Rightarrow develops by 12-16wks of gest.

* TATOO MARK

Commonly used dyes \Rightarrow Indian ink; Prussian blue; Vermilion; carbon; Indigo; cobalt.

- Tattoo Mark is permanent

\hookrightarrow When dyes penetrate the dermis.

AIIMS Infrared Photo-graphy makes old tattoo readily visible

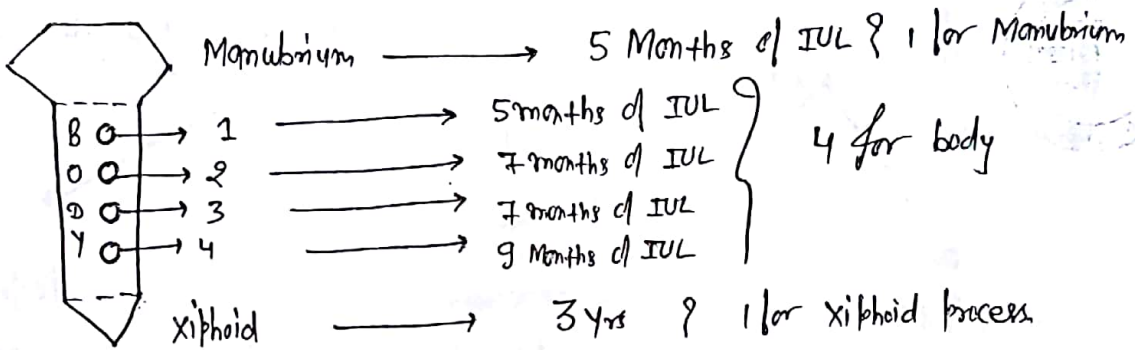
NEET

A faded tattoo mark become visible by use of Ultraviolet Lamp.

AIIMS

Marks are recognized even in the decomposed bodies when the epidermis is removed.

* Sternum ossification centre



* Manubrium fusion \approx Body : 60-70 yrs.

* Xiphoid fusion \approx Body : 40 yrs

* 14yr \rightarrow 25yr \Rightarrow Lower to upper body fusion
(started) (complete)

* Temporary tooth Eruption

$2\frac{1}{2} \text{ yr} \approx 20$
(All temp. tooth by 30 months)

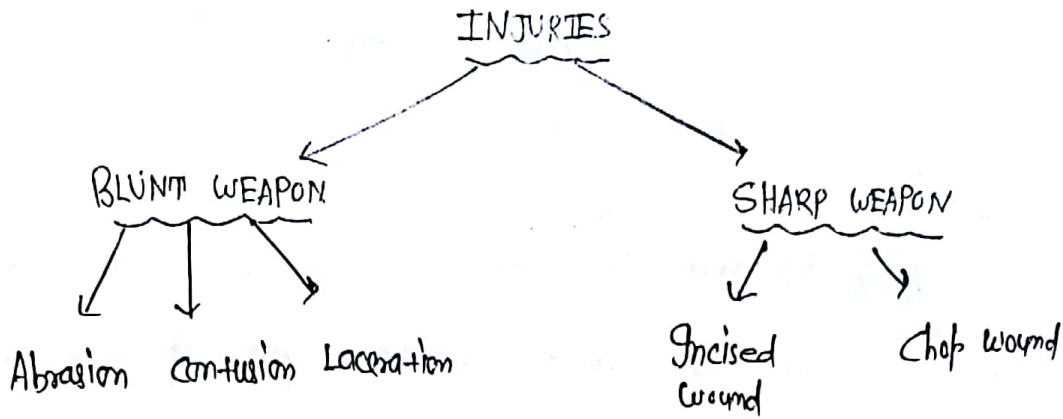
7-9M	7-9M	C	12-14M	20-30M
I	I		M	M
I	I	C	M	M
6-7m	10-12m	17-20m	12-14m	

* "Super added permanent teeth" \Rightarrow 6 Permanent Molars; which erupt extra in each jaw out Replacing Any teeth.

* Successional permanent teeth \Rightarrow All other permanent teeth except super added permanent teeth.

* In both, deciduous & permanent teeth, dentition occurs earlier in the Lower jaw except \Rightarrow

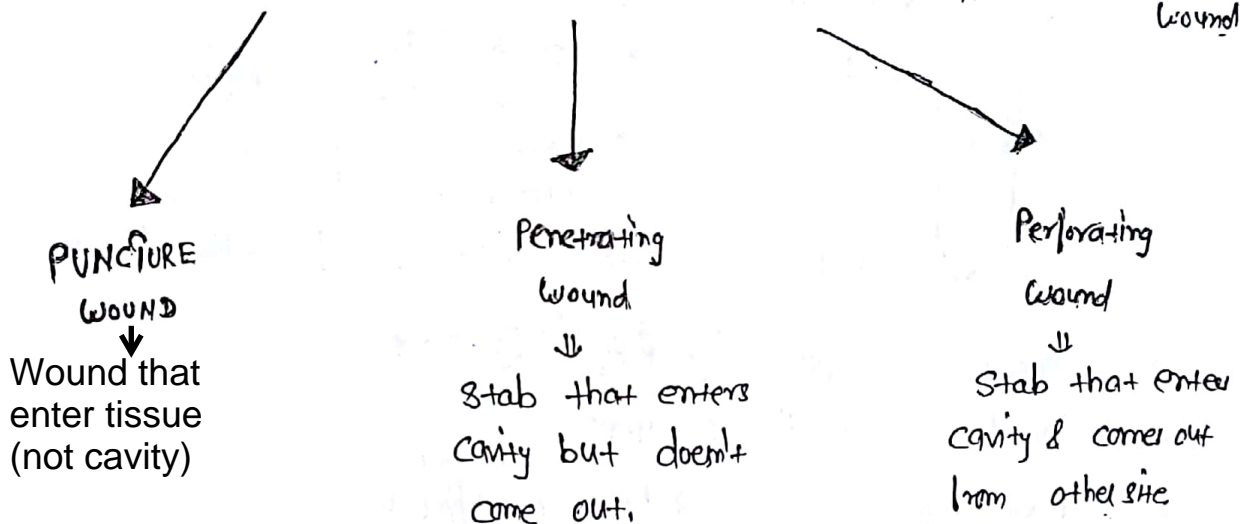
MECHANICAL INJURIES



Stab wound \Rightarrow Depth $>$ length or breadth of wound

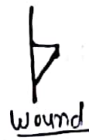
\hookrightarrow An im. Injection should be stab wound

\hookrightarrow but it enters tissue, Not in cavity \Rightarrow so "Puncture Wound"



Single edge wound \Rightarrow causes "Fish tailing" wound

- one edge Blunt
- one edge Sharp.

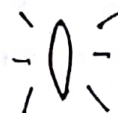
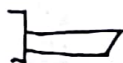


"Fish tailing"



Double edge wound \Rightarrow causes "spindle shaped wound"

- Both Edges are sharp



"spindle shape wound"

*

Weapon

Stab wound

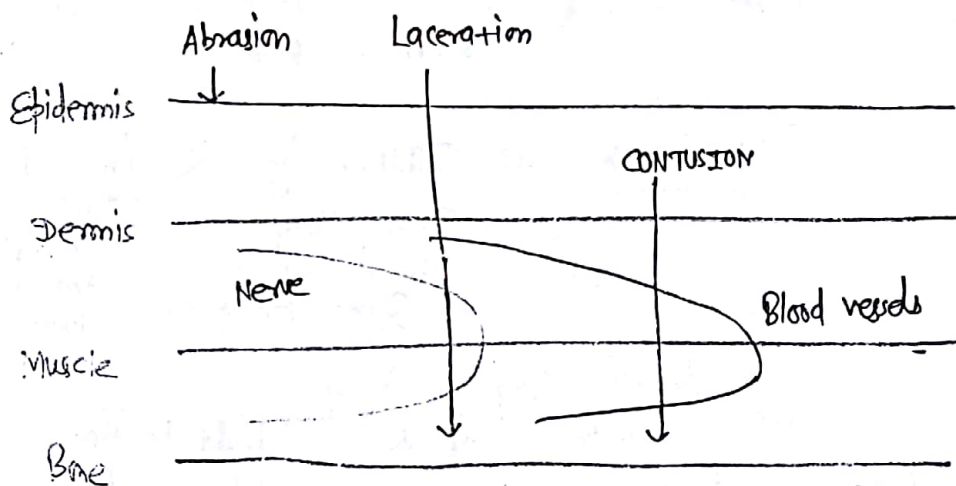
(22)

<u>Length</u>	----->	<u>Depth</u> of the wound
<u>width</u>	----->	<u>Length</u> of the wound
<u>Thickness</u>	----->	<u>Breadth</u> of the wound

HARAKIRI

- Japanese Method of Suicide
- Honourable death
- Transverse cut over abdomen
- Cause of death \Rightarrow Shock & Hemorrhage

INJURIES - By Blunt weapon



A1-13

Shape of stab wound depends upon \Rightarrow

- Edge of weapon;
- Shape of weapon;
- Width of weapon.

• ABRASION

\downarrow
epidermis alone damaged.

• LACERATION

\downarrow
epidermis along \bar{c} all underlying tissues damaged.

• CONTUSION

epidermis intact; but only deeper

ABRASION \Rightarrow Injury damaging the epidermis

Blood vessels \rightarrow Not damaged \rightarrow No bleeding

Lymph \rightarrow Swab

↓
Age of Abrasion \rightarrow 1-3 days \rightarrow Reddish Brown
 \rightarrow 1 week \rightarrow Heals

Abrasion anywhere in body 'Never Graveous Hurt' except Cornea
 \rightarrow b/c it heals by itself.

TYPE OF ABRASION \Rightarrow 1. SCRATCH/ LINEAR ABRASION ;

2. GRAZE ABRASION ; Multiple Linear Mark

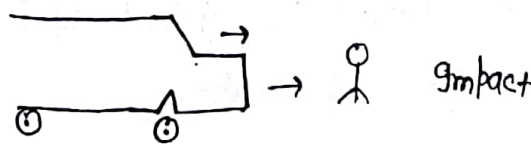
\hookrightarrow Resulting in friction burn/ Brush burn.

\Downarrow
Not getting separate Linear Mark
seen in RTA

3. PRESSURE ABRASION ; Caused by Sustained pressure
eg \Rightarrow Hanging. \hookrightarrow if type of car for 1 min.

4. IMPACT/ IMPRINT ABRASION ; Seen in RTA
 \hookrightarrow something in Motion ;
component of velocity should be there
Pattern of object is seen \Rightarrow K/a "Patterned Abrasion"

• Speeding car



• g/ Mark is present;
Like "Tyre Mark"

• speeding car breaks &
stops on leg



\Downarrow
"Patterned abrasion"

**** Differential diagnosis (Antemortem Abrasion) :-

- Ant bite mark
- Excreta
- Pressure sore

Caused by trauma d/t Blunt object
(Fist; Lathi; stick; whip
boot etc)

CONTUSION/BRUISE

- Extravasation of blood in surrounding tissue \bar{c} intact epitheli
- ECTOPIC BRUISE \Rightarrow Seen away from impact.

Raccoon's sign



\Rightarrow Anterior cranial fossa
contusion \Rightarrow Periorbital Region

Battle's sign



\Rightarrow Middle cranial fossa
contusion \Rightarrow Mastoid

- Patterned Bruise \Rightarrow Pattern of the object as Bruise

\hookrightarrow TRAMLINE Bruise \Rightarrow Two Pale Line

\hookrightarrow SIX PENNY Bruise \Rightarrow Contusion Resembling the finger tips of the
Murderer
eg \Rightarrow Throttling.

\hookrightarrow Tyre Mark \Rightarrow Can cause Patterned Bruise

Q. Which place contusion is better felt than seen?
Ans. \Rightarrow Scalp.

Age of Bruise

- 1-2 hrs \Rightarrow Red \Rightarrow d/t OxyHb
- 3 hr. - 3 days \Rightarrow Blue \Rightarrow d/t DeoxyHb
- 4th day \Rightarrow Bluish black \Rightarrow d/t Hemosiderin
- 5-6 days \Rightarrow Greenish \Rightarrow d/t Hemoroidin
- 7-12 days \Rightarrow Yellow \Rightarrow d/t bilirubin
- 2 wks \Rightarrow Normal

"Eye" (Subconjunctival Hemorrhage) doesn't show colour change

\downarrow
b'coz d/t Sufficient O_2 ; OxyHb never convert into DeoxyHb

LACERATION

Blunt weapon

Margins Irregular



Hemorrhage

Tissue Bridges \Rightarrow \oplus

\downarrow Intact fibres & Nerves

INCISED WOUND

Sharp weapon

Margins Regular



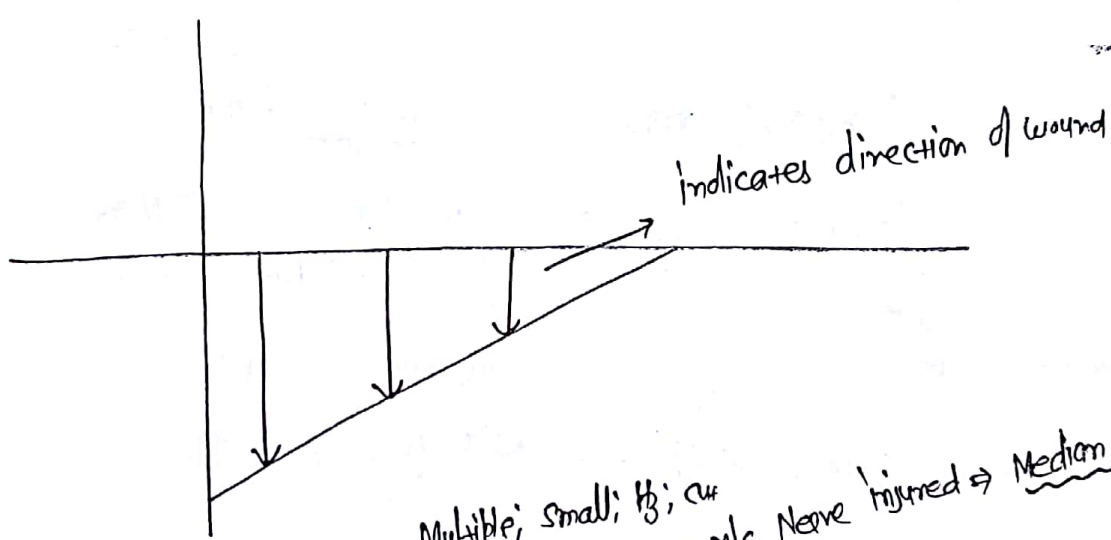
\ominus

• INCISED LOOKING LACERATED WOUND \Rightarrow Over Bony Prominence
 \Downarrow
Appear incised; but actually Lacerated, (eg: Jaw/tibia/etc...)

• LACERATED LOOKING INCISED WOUND \Rightarrow at Scapulum; Axilla
 \Downarrow
Appear Lacerated; but actually Incised.

• In Lacerated wound \Rightarrow Swallow tails (Y)

• TAILING OF INCISED WOUND \Rightarrow



Hesitation / Tentative cuts \Rightarrow Suicide (Rt. handed \rightarrow Left sided cuts)
 \swarrow Multiple; small; Hg; cur
 \searrow M/C Nerve injured \Rightarrow Median N.

Defence wounds \Rightarrow Indicate Homicide opposite to dominant side

FLAYING / degloving injury
 \swarrow Homicidal in Nature
 \searrow Seen in extensor surface of Forearm on Ulnar side
Avulsion Laceration \Rightarrow Complete separation of skin

\Downarrow
Skin goes 2 type of case
 \swarrow Type of Avulsion (Shearing Laceration); In which shearing & grinding force by weight produces.

- * Hill Contusion \Rightarrow
- ① Indicates complete penetration;
 - ② helps to know the time since injury;
 - ③ indicates the amount of force applied;
 - ④ Direction can't be assessed.

NEET'16
Q.*

In Penetrating Abdominal trauma d/t stab wound; the M/c injured organ \Rightarrow

① Liver; \downarrow 40%	② Small Bowel; \downarrow 30%	③ Diaphragm; \downarrow 20%	④ Colon \downarrow 15%
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SKULL

• Frontal & Parietal bone \Rightarrow 6-10 mm
• occipital bone \Rightarrow 15 mm

Temporal bone - Thinnest bone

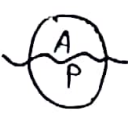
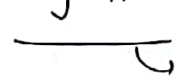
Intact scalp \Rightarrow 400-600 psi \Rightarrow 65 N-m
 \downarrow
Panel squashes

Force \nearrow
Require #

\searrow Clout scalp \Rightarrow 25 psi

Types of Skull # \Rightarrow

1. Linear or Fissure # / Polar # \Rightarrow M/c type of # (skull)
2. Depressed # / Signature # \Rightarrow 2nd M/c type of # (skull)
3. Ponds # / Indented # \Rightarrow Seen in Infants.
 \hookrightarrow Looks like "Ping-pong ball" \Rightarrow so, K/a "Ping-pong #".
4. Gutter # / Bullet injuries

- 5. Communitied # \Rightarrow Spider web Appearance
 - 6. Diastratic / Suturel # \Rightarrow Common in Young Adult
 \hookrightarrow M/c suture to separate \Rightarrow Sagittal Suture
 - 7. Motorcyclist # / Hinge # \Rightarrow Involves Base of skull 
 - 8. Ring # \Rightarrow Seen in Fall from height
 # along foramen Magnum
 - 9. Bursting # \Rightarrow Occurs some distance away from site of impact
- V.V.G.
* Skull # Heals 2/out visible callus.

Extradural hemorrhage

- Always Traumatic
 - Middle Meningeal Artery
 - 100ml of Loss is fatal
 - Lucid interval can be present
 \hookrightarrow Period of Normal b/w two Insane
 - Direct hemorrhage seen in EDA
 - M/c site \Rightarrow Parieto-occipital Region
 - M/c cause of death \Rightarrow Respiratory Failure
- \rightarrow also seen in \Rightarrow (A) Insanity; (B) Subacute / chronic epidural Hemorrhage (EDA).
- In Lucid interval; the person can:
- (A) Make a valid will;
 - (B) can give valid evidence;
 - (C) is Legally Responsible for Act done (civil/criminal).

* Lucid interval is seen in \Rightarrow EDH > SDH

SUBDURAL HEMORRAGE

- Traumatic / Spontaneous
- M/c cause - Damage to bridging vein
 \hookrightarrow Running from cerebral cortex to dural sinuses
- seen in Boxer; called as "Punch drunk hemorrhage"
 \hookrightarrow but different from Boxer Hemorrhage
 \hookrightarrow Pontine Hemorrhage
- Kernohan's Notch \Rightarrow U/L grooving of cerebral peduncle
- Duret's Hemorrhage \Rightarrow Hemorrhage in mid brain & pons.
- Plaques Jaune \Rightarrow old cortical contusion after heal.

Coup injury \Rightarrow Injury @ the site of impact.

Counter coup injury \Rightarrow away from the site of impact

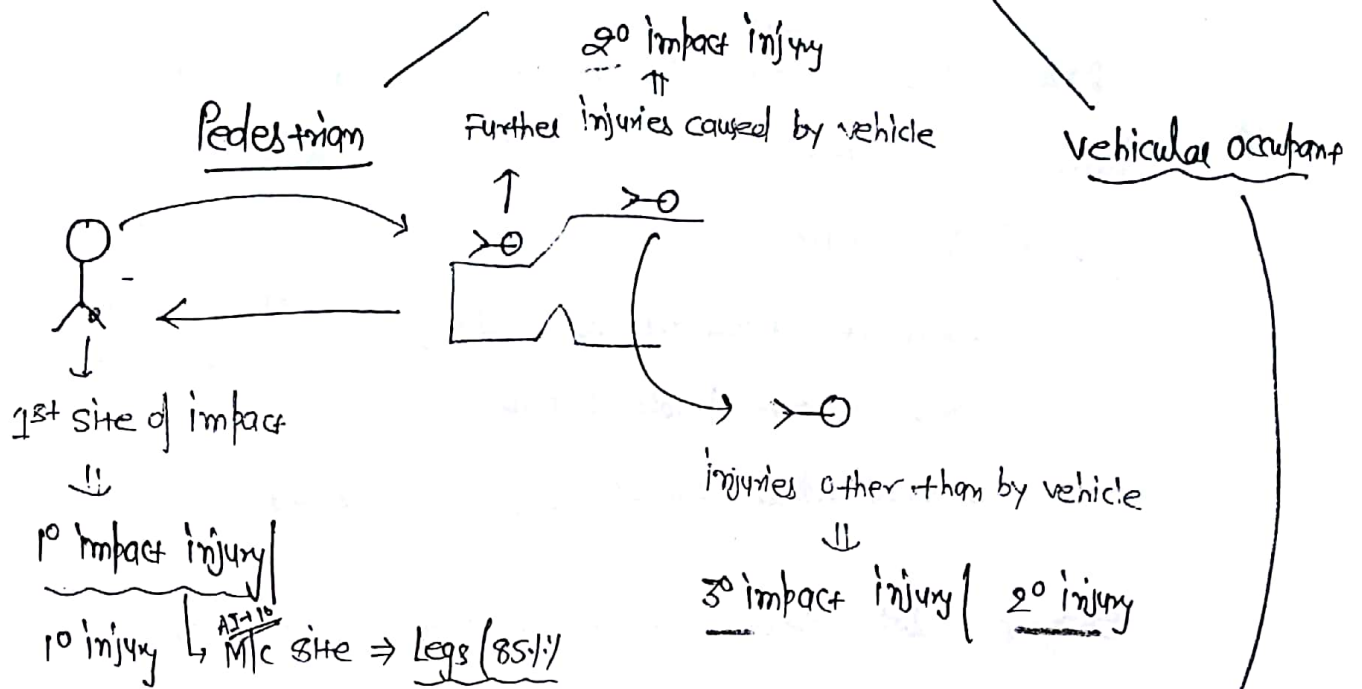
\hookrightarrow Uncommon in occipital region

Stationary head causes only Coup injury; but Mobile head can cause both

TRAFFIC ACCIDENT

(26)

- Death \bar{c}/m 30 days of Accident is attributed to RTA.



Whiplash injury \Rightarrow Hyperflexion b/b Hyperextension
Hyperextension b/b Hyperflexion. (M/c)

More dangerous

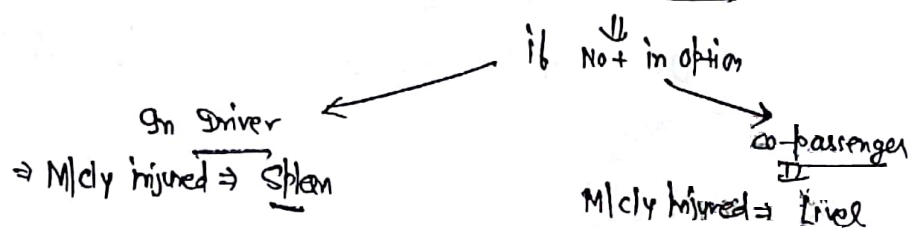
Stationary car hits by behind Moving car

- No damage to vertebral bodies.
- Spinal cord damaged \bar{c} Anterior Longitudinal Ligament damage.

Windshield glass injury \Rightarrow "Sparrow feet Appearance"

\hookrightarrow Causing Multiple Laceration on face d/t Impact of face \bar{c} glass & piece of glass

Seat belt Syndrome \Rightarrow M/c involved organ \Rightarrow Mesentery



• Tailgating \Rightarrow Decapitation of Motorcyclist d/t posterior impact into heavy vehicle.

Q. RTA - 2 bodies found outside vehicle. From which of the following findings we can't differentiate b/w a driver & a co-passenger?

1. ~~Whiplash injuries~~

2. Sparrow leg appearance \Rightarrow Passenger

3. Linear abrasion of left shoulder \Rightarrow co-passenger

4. Steering wheel impact injury \Rightarrow Driver

Q. Enzyme 1st elevated in tissue injury \Rightarrow Cathepsin

Q. Ladder tear seen in usually \Rightarrow Driver.

Q. Rolling injuries mainly by \Rightarrow hit by a vehicle of Low chassis.

Q. Diffuse axonal injuries May show \Rightarrow Retraction balls.

Retrograde Amnesia;

Immediate loss of consciousness

Q. A Pedestrian is hit by a car Resulting in # of tibia. The Autopsy Surgeon says that he is able to determine the direction of Impact by the apex of #. The apex of # of tibia is?

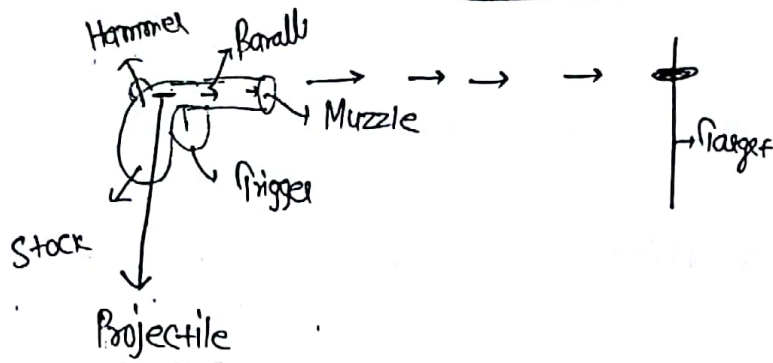
a. Opposite of direction of Impact;

~~b. Along the direction of Impact;~~

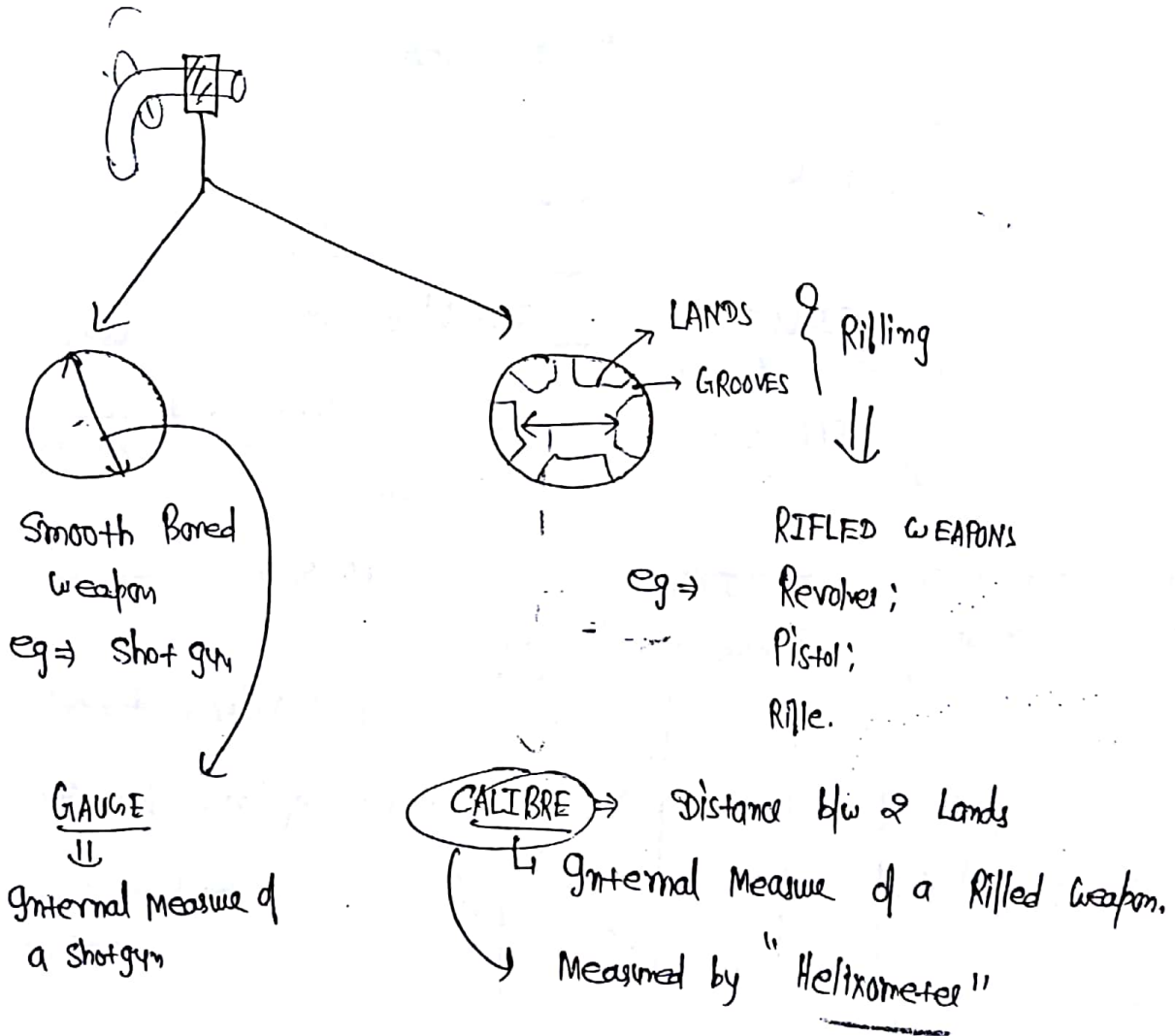
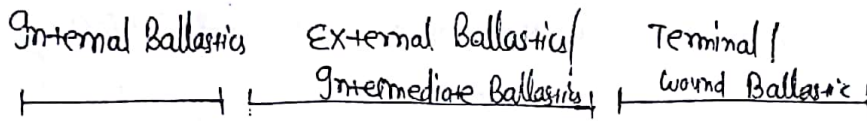
c. Perpendicular to the direction of Impact;

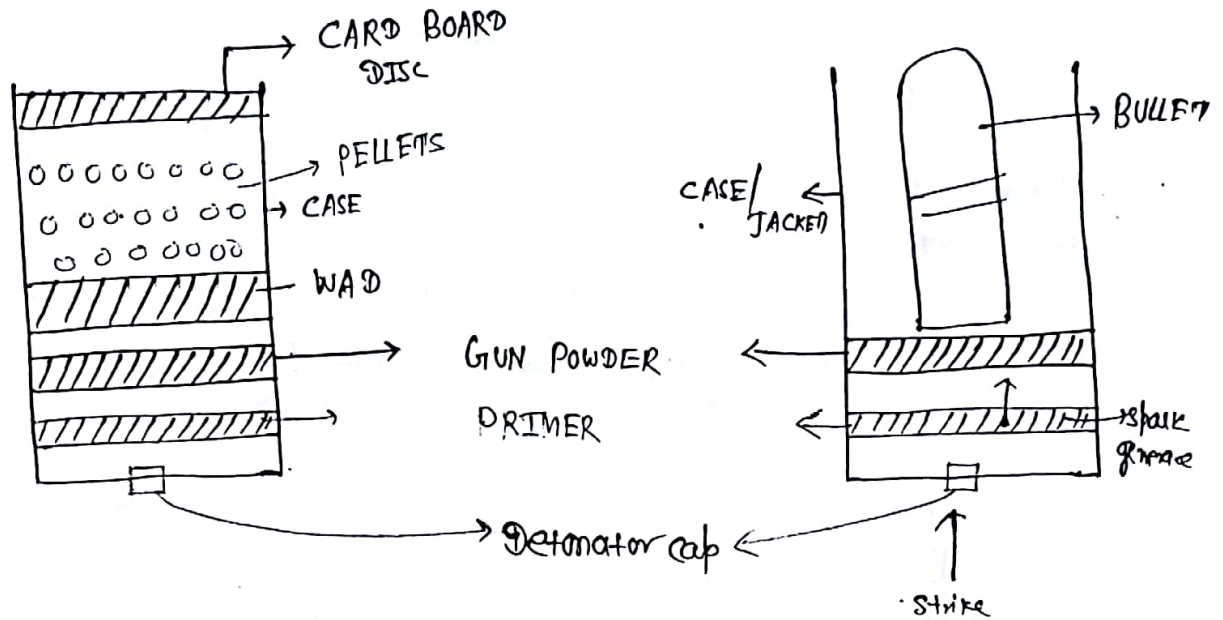
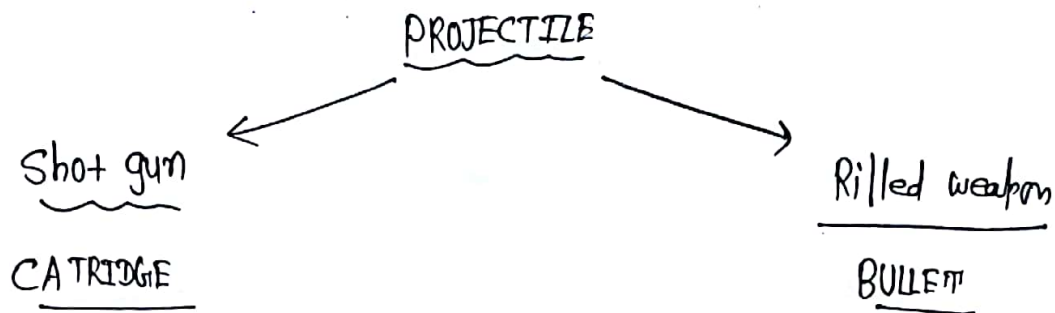
d. Not Related to direction of Impact.

FORENSIC BALLISTICS



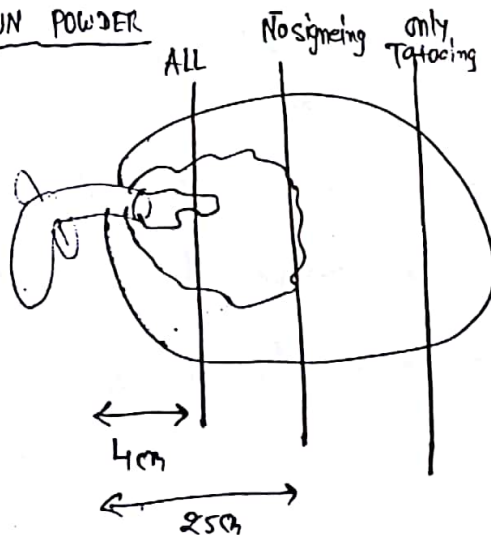
When it is in the barrel





effect of Gun powder

<u>FLAME</u>	—	SINGEING
<u>SMOKE</u>	—	BLACKENING
<u>UNBURNT PARTICLES OF GUN POWDER</u>	—	TATOOING



<u>Shot gun</u>	<u>Rifled weapon</u>
Seen up to 15 cm	8 cm

300m	
60-90 cm	

Nothing can be seen

S/B/T helps to determine →

- ① Dist. of Target from Muzzle;
- ② Entry wound (Never seen @ exit wound)

ENTRY WOUND

28

- ① S/B/T \Rightarrow \oplus
 - ② Cherry Red colour of tissue (d/t Carboxy Hb)
- d/t Gun Powder (so; seen in both Rifled weapon & Shotgun)

Entry wound in RIFLED WEAPON

Mnemonic \Rightarrow CAGE



Shored exit wound

Abrasion collar @ site of exit.

Bullet wound

Grease collar / dirt collar

Abrasion collar

Contusion collar

Entry wound d/t Shotgun

Shape of wound

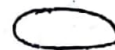
CONTACT SHOT \rightarrow

cruciate / Stellate shape



CLOSE SHOT
($< 30\text{cm}$) \rightarrow

oval shape



NEAR SHOT
($30\text{cm} - 1\text{m}$) \rightarrow

Rat hole shape



$< 2\text{m}$ \rightarrow

Wad

$< 4\text{m}$ \rightarrow

Satellite wound



$> 4\text{m}$ \rightarrow

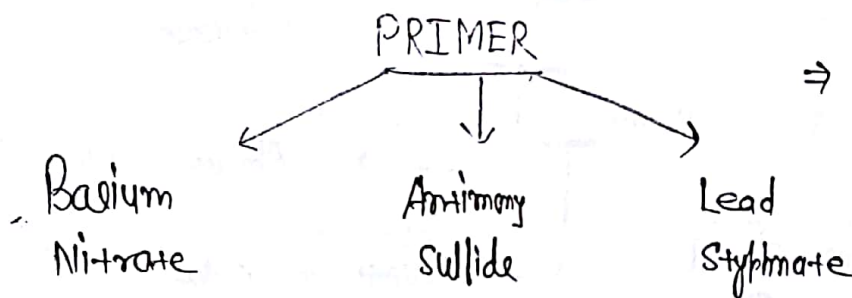
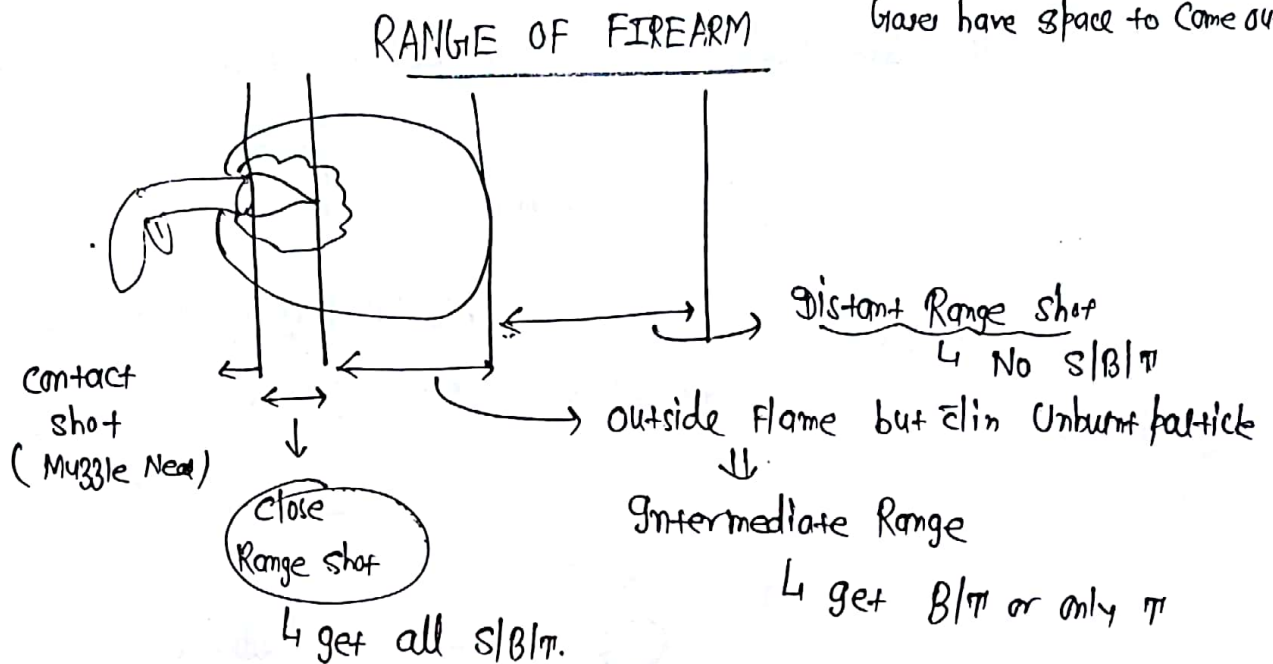
Individual bullet wound

BACK SPATTER \Rightarrow Seen in contact shot

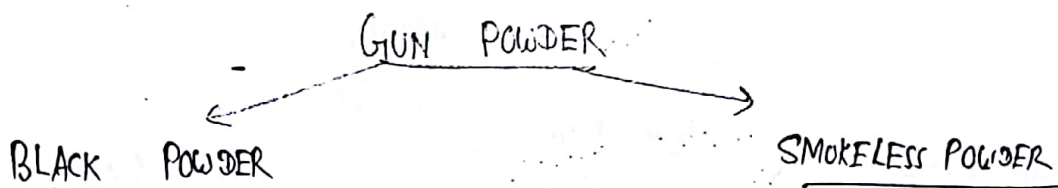
\hookrightarrow gases Re-enter the Muzzle of weapon.

* S/B/T can also seen in contact shot (Loose contact shot)

\Downarrow
Gases have space to come out.



\Rightarrow Mnemonic \Rightarrow BAL



$\text{KNO}_3 \Rightarrow 75\%$ (supply O_2 for burning)

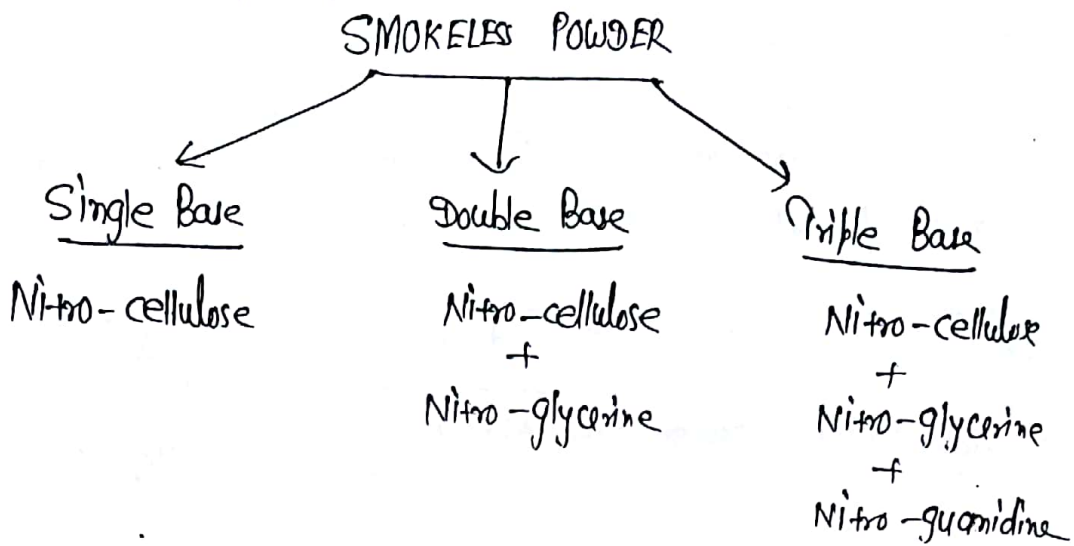
$\text{S} \Rightarrow 10\%$ (density compound)

charcol $\Rightarrow 15\%$ (Fuel)

- Designated as Fg ; FFg ; FFfg etc

Fg
Fine granule

\hookrightarrow Less No. of Unburnt particle; Minm fanning; Maxm gas production



- produce 12000-13000 cc/gm
- it doesn't mean No gas/Smoke; Amount of Blackening is Less

Test - detect Recently fired FA

- ① Dermal Nitrate test / Paraffin wax test
↳ useful for determining the Nitro group base
 - ② Harrison & Gilroy test
↳ (BAL) Primer detection
 - ③ Neutron Activation Analysis
 - ④ Atomic Absorption Spectroscopy (AAS);
 - ⑤ Flameless AAS;
 - ⑥ Scanning Electron Microscopy - Energy Dispersive X-rays
(Best test)
↳ Not in option; Move upward from below
- } Any Metal detection

BULLET

→ LEAD (Made of)

→ May combine Antimony to make it hard.

$$K.E. = \frac{1}{2}mv^2 \text{ (Tes velocity is preferable)}$$

Cavitation

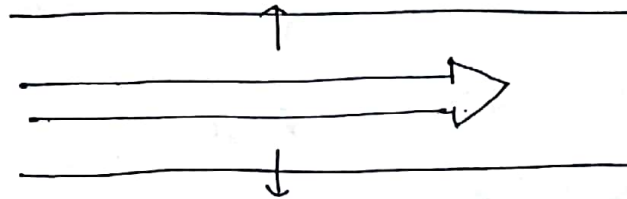
⇔

Lateral displacement of tissues by projectile

Seen in Rifle

passes into the tissue

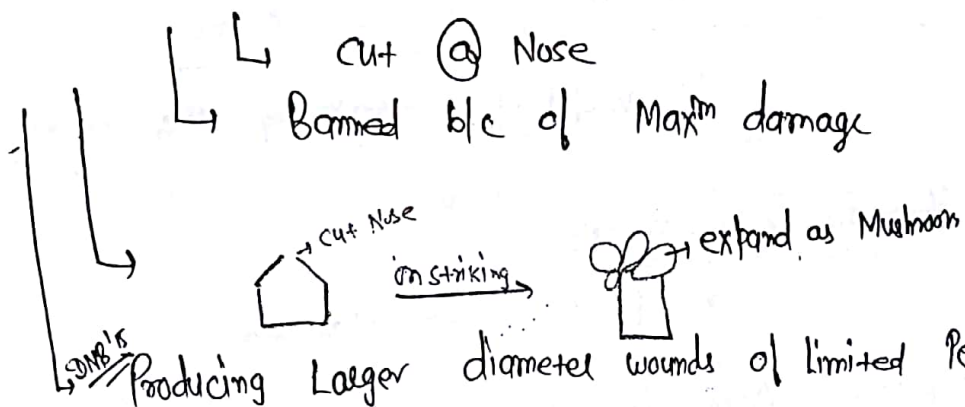
→ HVP ⇒ High Velocity Projectile



↓
b/c the more the velocity -
More chance of cavitation.

TYPES OF BULLETS

DUM-DUM BULLET ⇒ expands on striking



SOUVENIER BULLET ⇒ pri. in body for Long time

→ causes complication ⇒ Pb Poisoning

→ khar "Retained bullet"

③ Tandem / Piggyback Bullet \Rightarrow one behind other

\hookrightarrow Single entry by both

Distant shot May cause two entry wounds.

④ Incendary Bullet \Rightarrow contain "Phosphorus"

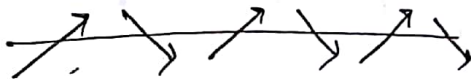
⑤ Explosive Bullet \Rightarrow contain "Lead oxide".

⑥ Richochet / Deflected Bullet \Rightarrow

Bullet who stumbles (मंड़राया-1)
along his axis



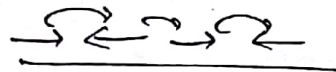
"Yawning Bullet"



Rotate around the axis



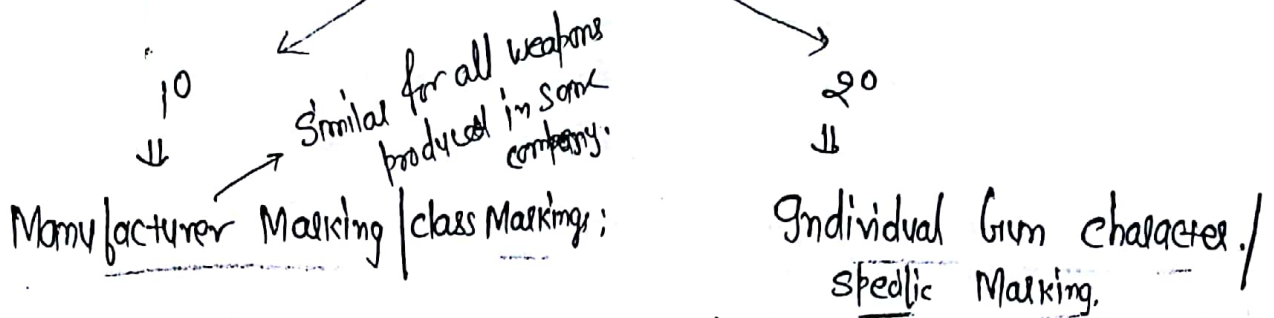
"Tumbling bullet"



"Key hole entry"

* By single bullet we can't tell about weapon correctly.

MARKING OF BULLETS



20 Markings are More specific about the weapon from which fire.

— Recovery of Bullet should always done by ⇒ HANDS
 ⇓
Never in blunt object

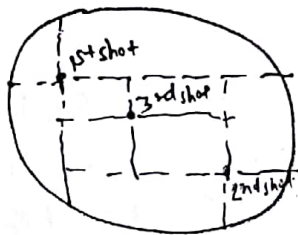
→ These Markings are Not seen in shotgun as it doesn't have Lands & grooves

BULLET INJURIES TO SKULL

1. GUTTER'S # ;

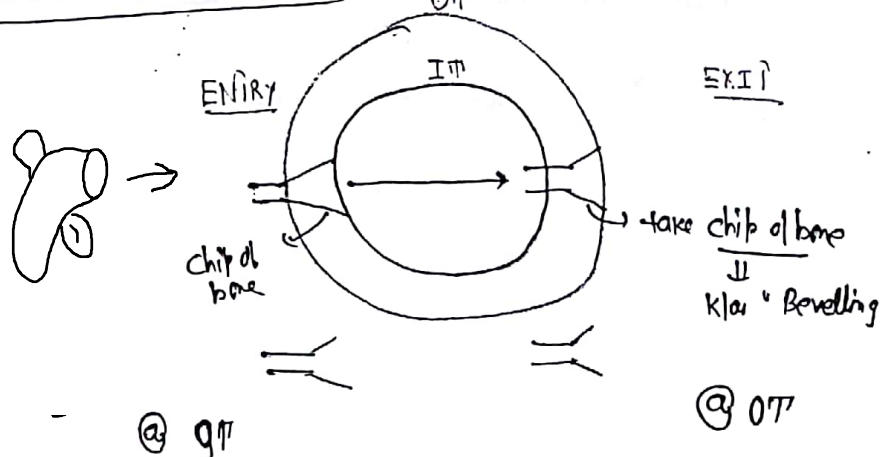
2. PUPPE'S RULE

↳ useful to know sequence of shots fired.



⇒ Newly formed # Lines never crossed previously # lines.

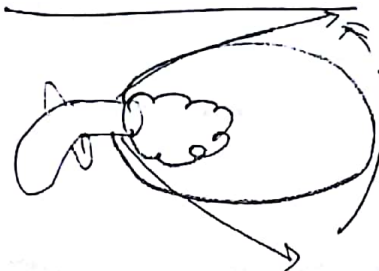
3. BEVELLING OF SKULL ⇒ Chipping of skull.



(31)

4. KENNEDY'S PHENOMENON \Rightarrow Surgical Artifacts that prevents distinguishing b/w Entry & Exit wound.
 \hookrightarrow direction of line is assessed after knowing about Entry & Exit wound.

5. CHOKING OF SHOTGUN \Rightarrow Constriction of Muzzle End



Arc of dispersion

* Choking Reduce the Dispersion. In Unchoked shotgun there is full dispersion of pellets.

Full choke \Rightarrow Constriction of 1mm

Half choke \Rightarrow Constriction of 0.5mm



Arc of dispersion after Choking

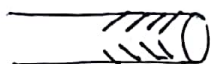
Cylinder Bore \Rightarrow 0mm
 weapon

$$\text{Spread} = \text{Range} \times \frac{3}{2} \quad (\text{for Cylinder Bore weapon})$$

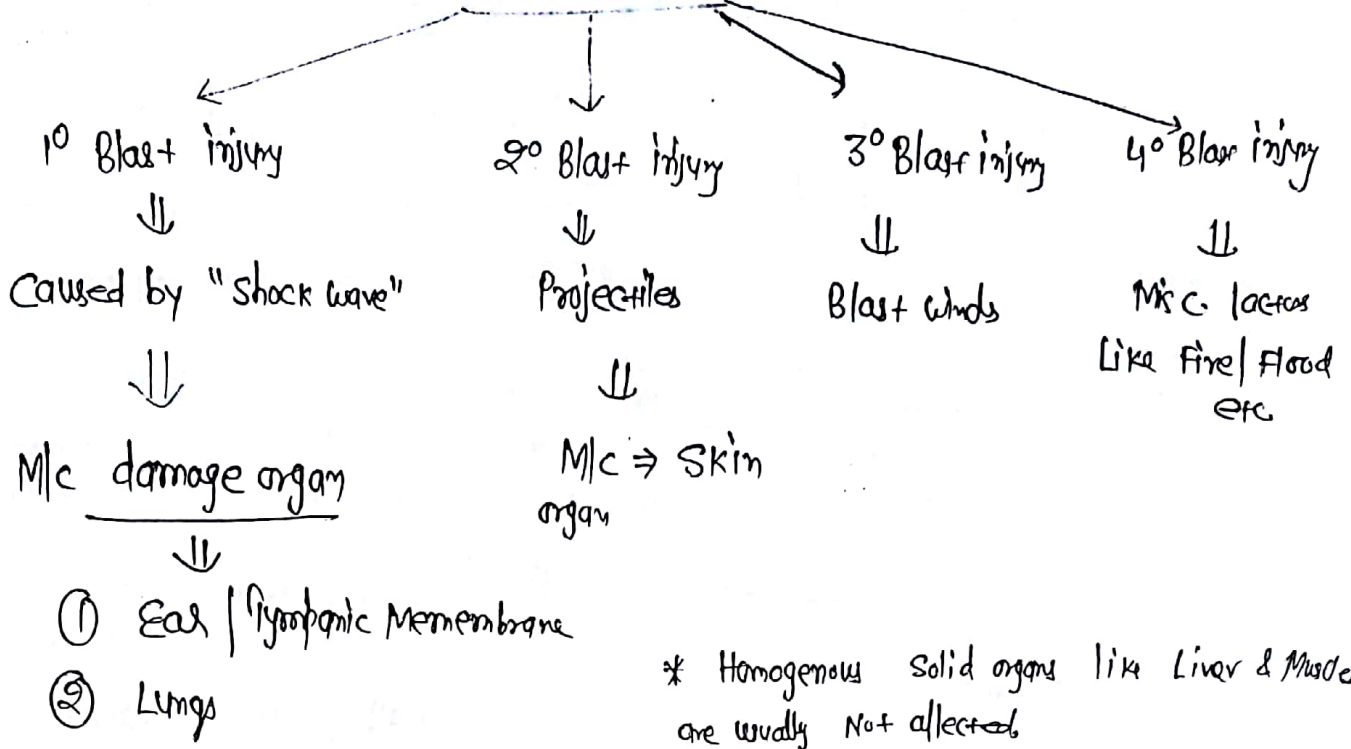
$$\text{Range} \times \frac{3}{3} \quad (\text{for Half choke weapon})$$

$$\text{Range} \times \frac{3}{4} \quad (\text{for Full choke weapon})$$

6. PARADOX GUN \Rightarrow Smooth Bore weapon \bar{c} rifling @ the end.
 \hookrightarrow combination gun that can fire both pellets like a shotgun & paradox bullets like a Rifle



BLAST INJURY



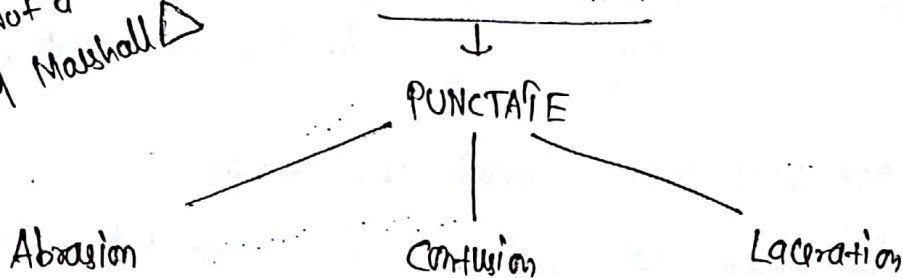
M/c in Underwater Blast
↓
① GIT

* Shock wave ⊕ Projectile ⇒ Return by Negative pressure suction.

M/c Head Immersed ⇒ Ear

is Not a part of Marshall

MARSHALL'S TRIAD



MOLOTOV'S COCKTAIL

- Home Made Bomb
- Incendiary Bomb
- Petrol Bomb we; Not Kerosene

Q. Stability of the bullet is given by \Rightarrow Rifling.

Q. A tyre passes over the leg of a person resulting in Tyre Mark. What is the injury?

a) Pressure abrasion

b) Gmprint abrasion

~~c) Patterned abrasion~~

d) Bruise

a) Pressure Abrasion

b) Gmprint "

~~c) Patterned Bruise~~

d) Bruise

Q. Ladder tears are usually seen in \rightarrow ~~a) Driver;~~

b) Front Seat Passenger;

c) Pedestrian;

d) Rear seat Passenger.

Q. Agonal Artifact \Rightarrow Perimortem Artifact.

Q. Which of the following is Not a Manifestation of Shaken Baby Syndrome?
~~a) Burns;~~ b) Retinal hemorrhage; c) Rib #; d) SDH

Q. Not a feature of Post Mortem clot?

a) Yellow chicken fat appearance; ~~b) Adherence to wall;~~ c) Red curd-jelly appearance

d) Friable

Q. Pyrogallol test is used to differentiate \Rightarrow Air embolism from putrefactive gas.

Q. Pink teeth in decomposed bodies is seen in death d/t \Rightarrow

a) Asphyxia; b) CO Poisoning; c) CN Poisoning ~~d) None of the above~~

Q. In water; Putrefactive changes are 1st seen in \Rightarrow

~~a) Face;~~ b) chest; c) Upper limbs; d) Abdomen

Q. After tooth injury, in how much time the socket is completely filled w/ organic clot? a) 1-2 days; ~~b) 1 wk;~~ c) 2-2mth; d) 6mth

Q. Alliteration cases Refer to:

a) Legitimacy; b) Atavism; c) Suppositious child; ~~d) Suits for Adoption~~

Q. In Advanced decomposition which one of the following can be detected

a) valvular lesion of heart;

b) Thrombus in coronary vessels;

~~c) Ligation Mark of hanging;~~

d) Laceration of brain

Thermal Injuries

COLD

Heat

Dry

* Frost Lip;

* Frost Bite

→ Seen at -20°C

Wet

* Chilblains/Perniosis

* Trench foot

→ Seen at 5°C to 8°C

* Hypothermia $< 35^{\circ}\text{C}$

* Hypothalamus stop functioning $< 32^{\circ}\text{C}$

* $< 26^{\circ}\text{C} \Rightarrow$ Death occurs

* Sequence of event in Frost bite \Rightarrow

• Erythematous patches \Rightarrow Few hours

• Sol + blisters \Rightarrow 24-36 hours

• Hard & black \Rightarrow 2 weeks

• Deep upto the bone \Rightarrow 1 Month

Thermoregulation
Stops working

** "Vasodilation Peripheral"

Person feels hot & Removes cloth; so;

** "PARADOXICAL UNDRESSING"

Subsequently Hide behind
Chair, Sofa

Mental confusion

Found dead over there \Rightarrow

Hide & die Syndrome a/w hypothermia

THERMAL INJURIES

Caused by Heat

Heat + Syncope also k/a/s (23)

"Heat + exhaustion / Heat collapse / Heat + Prostration"

Localised effect of Heat

Systemic effect of Heat

also k/a/s "Fremont's cramp"

Heat cramp / Miner's cramp / Stokes cramp

Heat syncope

Heat + hyperpyrexia / syn stroke

Heat + Stroke / Thermic fever

Compensatory Mechanism by Hypothalamus

By Sweating & Vasodilation

both are seen in cramp & syncope both.

caused by predominant Sweating

(A) Sweating

↓
Loss of H₂O, electrolyte

↓
Dehydration; dyselectrolytemia

↓
Heat cramps

Temperature → Normal

Seen when body temp. $>41.5^{\circ}\text{C} / 106^{\circ}\text{F}$

(B) Vasodilatation

↓
- Predominant

↓
Peripheral pooling

↓
↓ venous Return

↓
cerebral hypoxia

↓
Syncope (Heat Syncope)

Hypothalamus stop functioning

Elevated → Rise Temp.

No Sweating

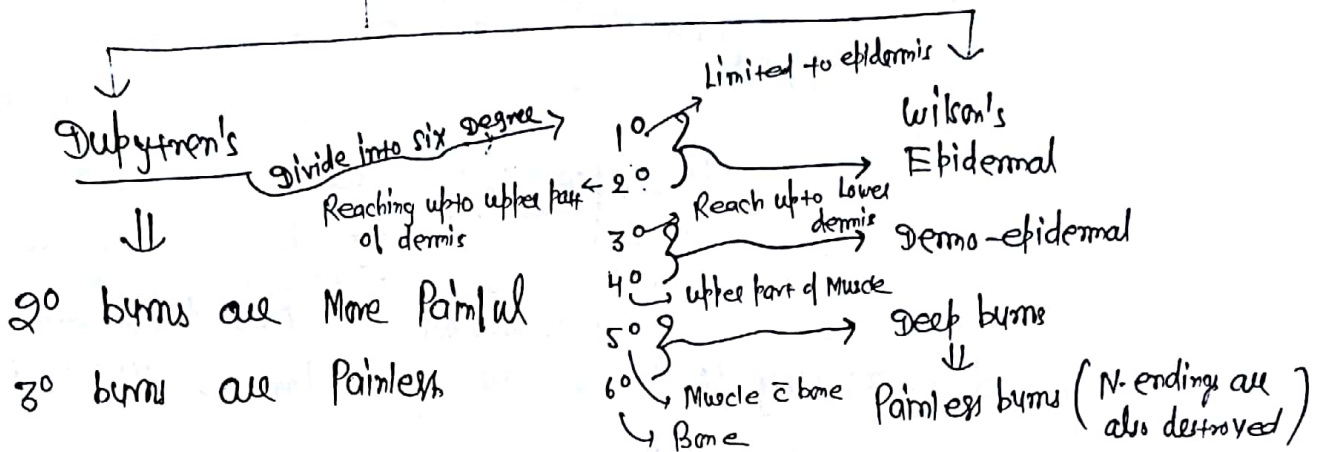
Pin-point pupil seen ($<1\text{mm}$ size)

also seen in → Pontine hemorrhage
Morphine poisoning
OP Poisoning

Localised effect of heat

1. Burns - Min^m temp. \Rightarrow 44°C for \rightarrow 6 hr.
 $45-51^{\circ}\text{C} \rightarrow$ times by $\frac{1}{2}$ on 1°C rise
 $65^{\circ}\text{C} \rightarrow$ 2 sec.

classification



• Heat Rupture



Resembles Laceration
(irregular Margin)
• No Bleeding seen
• Blood vessels intact

• Heat Fracture



Crosses over suture line

Cause of death :-

M/c immediately CO \Rightarrow Neurogenic shock

CO poisoning

< 48hr \Rightarrow Shock (Hypovolemic shock)

> 48hr \Rightarrow sepsis (Septicemic shock)

Q. Minm % of COHb Req. to give cherry Red colour

— 20%.

2. SCALDS :-

Caused by Moist heat

temp. > 60°C

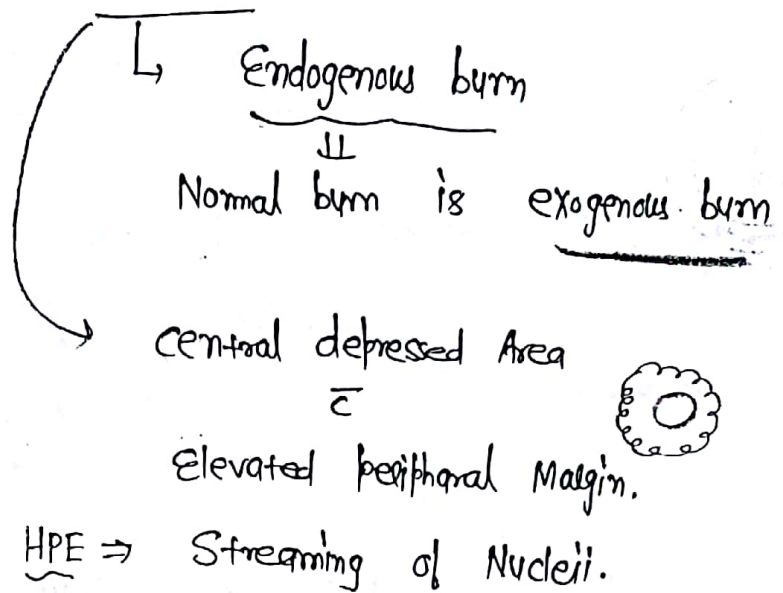
3. CHEMICAL BURNS :-

prts in \rightarrow Trickling

Splashing

Never seen \rightarrow Singeing of Hair
Blisters

4. ELECTROCUTION \Rightarrow "Joule burn" Seen



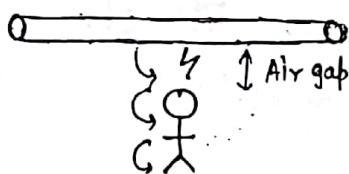
Most Resistant part to electric current \rightarrow

Dry skin $\gg \gg$ Bone \gg Moist skin

COD \Rightarrow
 follow Route of
 electric current.

Ventricular fibrillation (M/c) \Rightarrow if path is through heart
 Medullary paralysis \Rightarrow if path is through Brain

5. FLASH / SPARK BURN \Rightarrow Arching of current

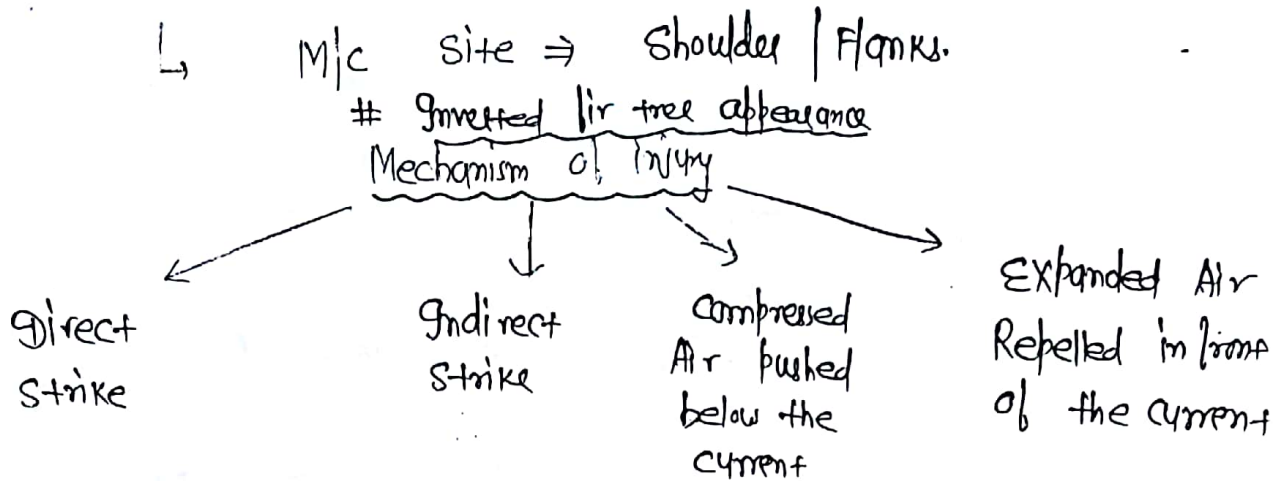


\Downarrow Result in
 crocodile skin appearance

* Most Dangerous path of electric current \Rightarrow From Left hand to Right foot.

* Judicial electrocution carried out \Rightarrow In U.S. (United States)

5. Lightening \Rightarrow Filigree | Arborescent burns | Lichtenberg's flowers



\Rightarrow Lightning bolt can cause injury Resemble to Blunt Trauma.

Q. Which of the following is Not suggestive of Inhalational Burn injury?

- ☒ a) Yellow sputum;
- ☒ b) Singeing of hair;
- c) Facial Burns;
- d) Hoarseness of voice.

STARVATION

- Feeling of Intense hunger lasts for \Rightarrow 30-48 hr
- Gall bladder distended d/t accumulation of bile from Lack of stimulation.
- Food & water Stopped \rightarrow death - 10 days
- Food Stopped - death - 60 days.

• Urinary Ketones - Time of Intervention

\hookrightarrow to forcefully feed the person

* Hunger Pangs \Rightarrow When hunger contractions start to occur in the stomach;
they are informally referred to as "hunger pangs".
- GI usually don't begin until 12 to 24 hours after last ingestion of Food.

ASPHYXIA

(36)

L i.e. Pulselessness

→ Lips; Gums; Tongue; inner side of Nose May show bruising or Laceration

SMOTHERING ⇒ External compression of Nose & Mouth

GAGGING ⇒ obstruction of oro-Nasopharynx by Any imprevious object.
i.e. filling piece of cloth in mouth

CHOKING ⇒ Internal obstruction of the upper Respiratory tract

POSTURAL ASPHYXIA ⇒ Wt. of self compresses the chest
L seen in "JACK-KNIFE" POSITION

TRAUMATIC ASPHYXIA ⇒ Wt. of other compress the chest
L characteristic finding: Mosque ecchymatosis (DNB + 15)

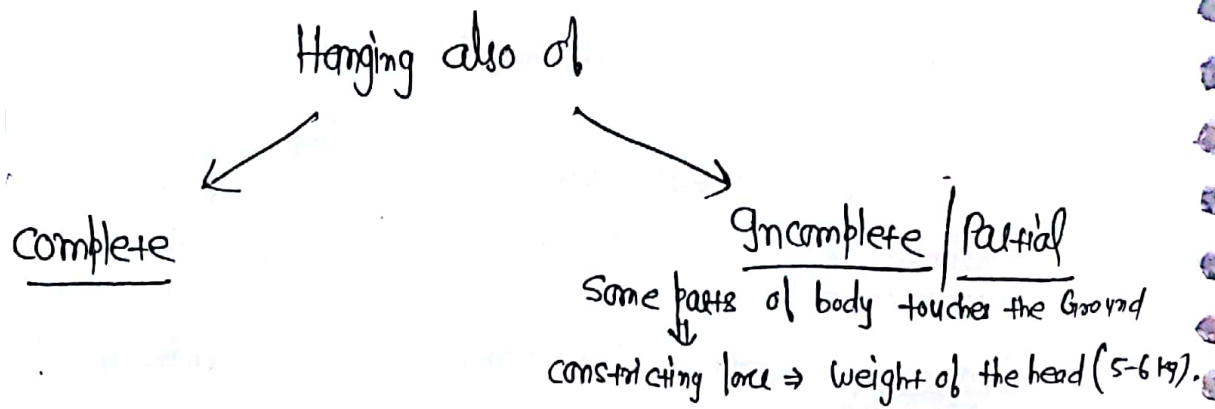
BURKING ⇒ Homicidal Smothering & Traumatic asphyxia

* Smothering Resembles endotracheal Intubation injury.
L if Not in option; Throttling + etc

HANGING ⇒ Constricting Force ⇒ Wt. of body

Typical
Knot → occiput (@ Nape of Neck)

Atypical
Knot → Anywhere else
Judicial hanging ⇒ Left Angle of Mandible
C₂-C₃ #
L Hangman's #
Jallous's # ⇒ C₁ #
Undertaker's # ⇒ C₆-C₇ #



- Most characteristic sign of Hanging



Ligature Mark \Rightarrow $> 80\%$ above thyroid cartilage

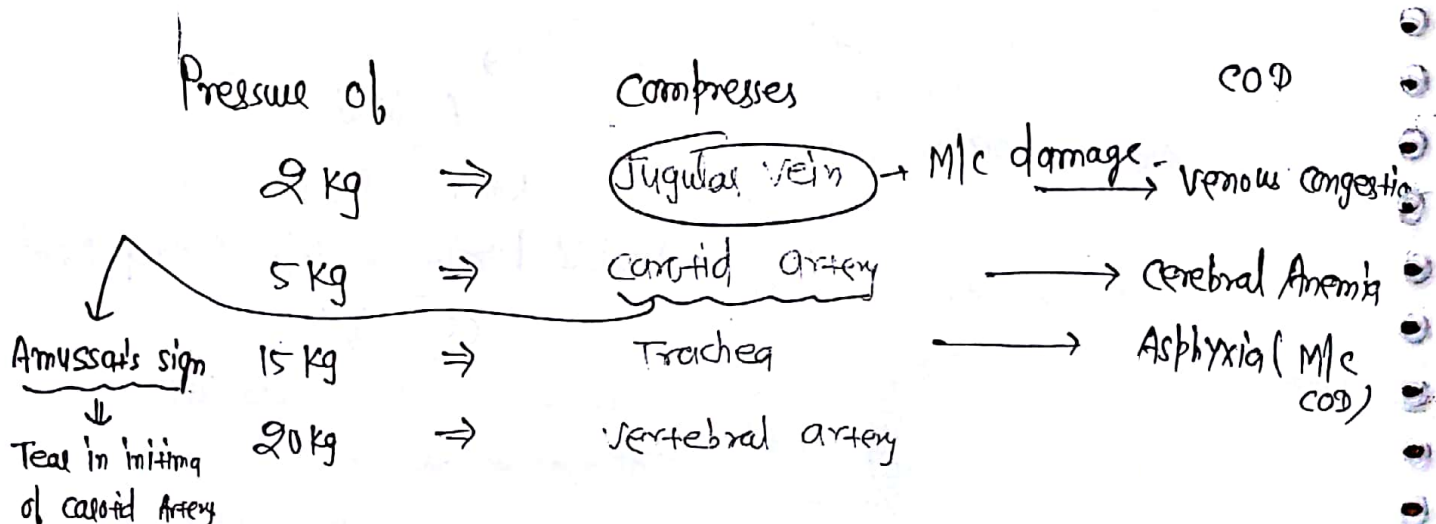
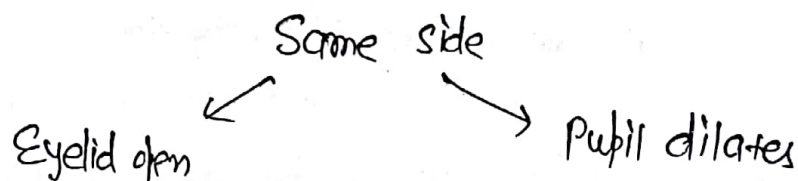
- Most characteristic sign of Ante-mortem Hanging



1. Dribbling of saliva
2. La facies sympathetique



compression of cervical sympathetic chain



STRANGULATION

(37)

CONSTRICTING FORCE \Rightarrow Other than cut of Body.

Ligature \Rightarrow Ligature strangulation

Manually \Rightarrow Manual strangulation / Throttling

Bamboo sticks \Rightarrow Bamedola

Elbow \Rightarrow Mugging

Judicial strangulation \Rightarrow Garrutting

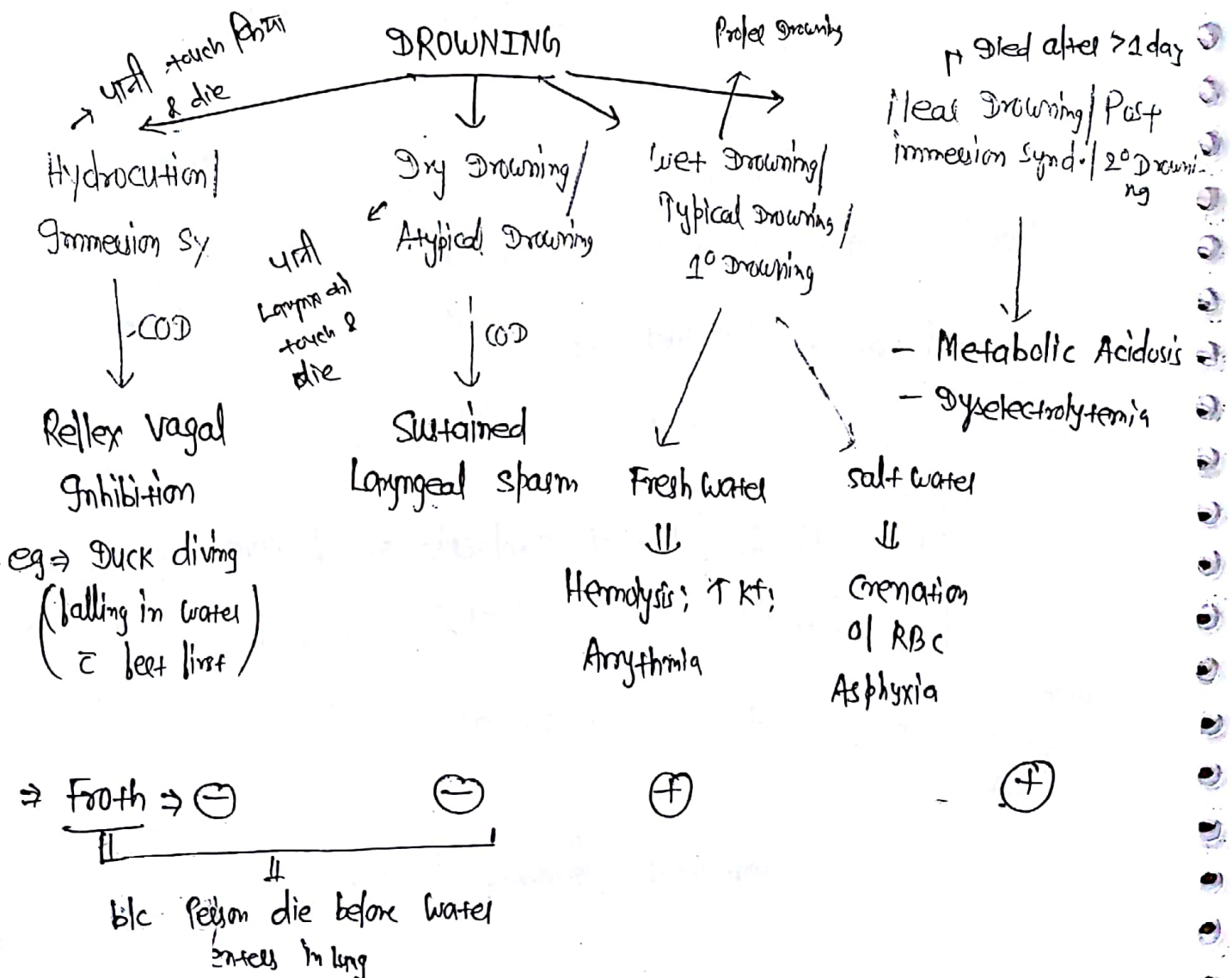
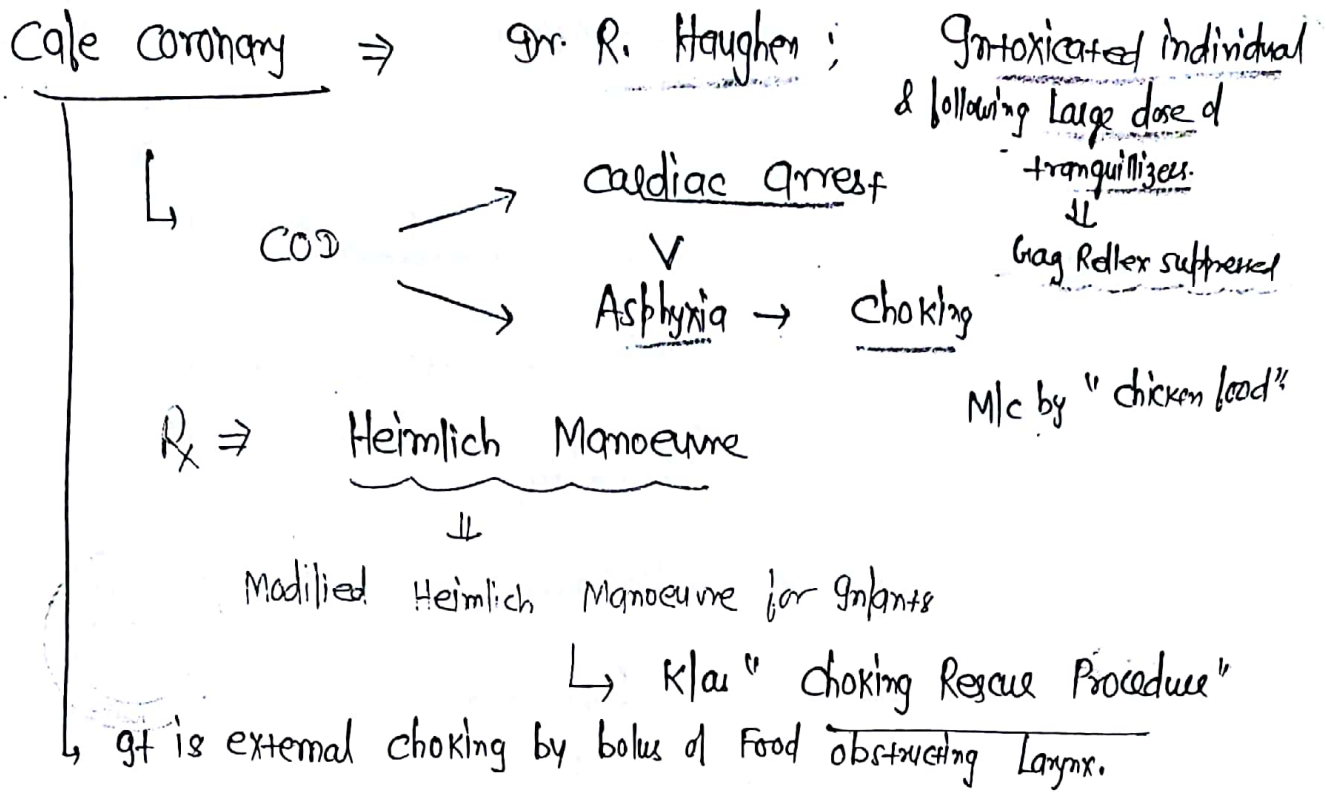
\Downarrow
"Spanish windlass technique"
 \hookrightarrow Practice in Spain.

	# Hyoid	# Thyroid	# cricoid
<u>Hanging</u> \rightarrow	15-20%	--	--
<u>Strangulation</u> \rightarrow	30-40%	+	Rare
<u>Throttling</u> \rightarrow	40-50%	+	+

\rightarrow ① Adduction / Inward compression # of Hyoid
Junction of inner 2/3rd & outer 1/3rd of greater cornu

Highly suggested \rightarrow ② # cricoid cartilage
Throttling

Lynching \rightarrow Homicidal hanging by Mob.



Froth \Rightarrow Contain of Respiratory Passage + Aspirated water.
(Mucus + Air + Surfactant)

Pathology of Drowning \Rightarrow

Fresh water Drowning \Rightarrow Hypotonic \rightarrow Cells loose $H_2O \rightarrow$ Hemolysis of + Swelling & Bursting

Salt water Drowning \Rightarrow Hypertonic \rightarrow Plasma concⁿ $\uparrow \rightarrow$ R.B.C Loses water
 \downarrow
Crenation of R.B.C

Asphyxia \leftarrow Can't take O_2

Dangerous? Fresh water: Dies in 3-4 min
Salt water: Dies in 8-12 min.

PM appearance of Drowning \Rightarrow

Grass & weeds
in hands



Cadaveric
spasm



Seen in AM

Washerwoman's
hands & feet



≥ 24 hr (Body in water)



Seen in both
AM/PM

Cutis Anserina /
Goose flesh



AM/PM

\uparrow diff Riger mortis

PM appearance of Lung \Rightarrow

Found only in wet drowning
Not in dry drowning

Alive & conscious (in AM Drowning)

Emphysema aquosum (water logged; heavy voluminous Lungs)
Lungs become bulky

Paltan's hemorrhage - Subpleural hemorrhage

Emphysema

DIATOMS \Rightarrow Microscopic Algae

\hookrightarrow Shell Made of Silica \Rightarrow Frustule

- Diatom of < 60 microns enter Pulmonary circulation
- \oplus of diatoms in systemic circulation \Rightarrow Confirm AM Drowning
- Max^m Diatoms are seen in \Rightarrow BM of Femur
But for preservation used "sternum"

Best organ to detect Diatom \Rightarrow Kidney

Test \Rightarrow Acid Digestion test

\downarrow
Concⁿ HNO_3 .

- Most characteristic signs of AM Drowning \Rightarrow

Grass & weeds
in Hands

$>$

Emphysema
aquosum

$>$

Paltauf's Hemorrhage $>$ Diatoms
in systemic
circulation $>$ Froth

* Strontium Rise \Rightarrow suggestive of AM Drowning

* Intimal damage to carotid Artery \Rightarrow Hanging \neq a trap

GETTLER'S TEST : Used to determine Salt / Fresh water death.

if the difference of Cl⁻ b/w two Atria $\geq 25\%$ $\Rightarrow \oplus$

eg \Rightarrow

1 Unit \leftarrow	RA	LA	\rightarrow 10 Unit

\Rightarrow got $\Rightarrow \oplus$ * Normally the chloride content is equal in the R^t & L^t chambers of heart (600mg/100ml).

* if Cl⁻ \uparrow in LA \Rightarrow Salt water Drowning;

* if Cl⁻ \downarrow in LA compared to RA \Rightarrow Fresh water Drowning;

exceptions \Rightarrow

a) In ASD

b) Decomposed body

c) Brackish water (iso-tonic H_2O)

} Gettler's test is Not useful

IMPOTENCE & STERILITY

Inability to perform

Intercourse



Ground for divorce

Inability to beget children



No ground for divorce

Frigidity \Rightarrow Female impotence

Vaginismus

vagina is abt.

spasm of Adductor of thigh.

AntiRake Muscle \Rightarrow Gracilis (Adductor of thigh).

* M/c cause of

Impotence \Rightarrow VasculogenicTemporary impotence \Rightarrow Psychogenic

* GUAD HANC - Selective impotence

CONSENT OF SPOUSEMTP \longrightarrow

X

Sterilization \longrightarrow

X

Artificial Insemination \longrightarrow

✓

SURROGACY REGULATION BILL, 2016

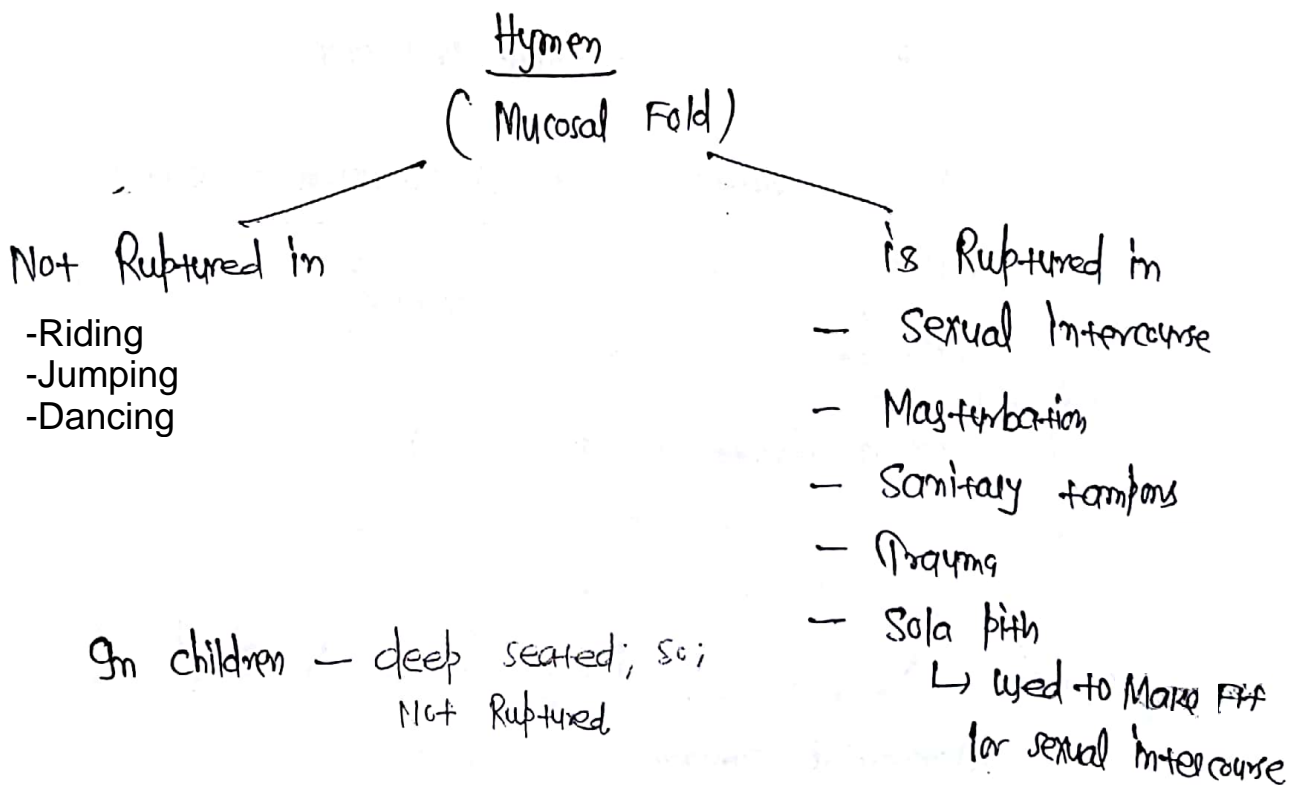
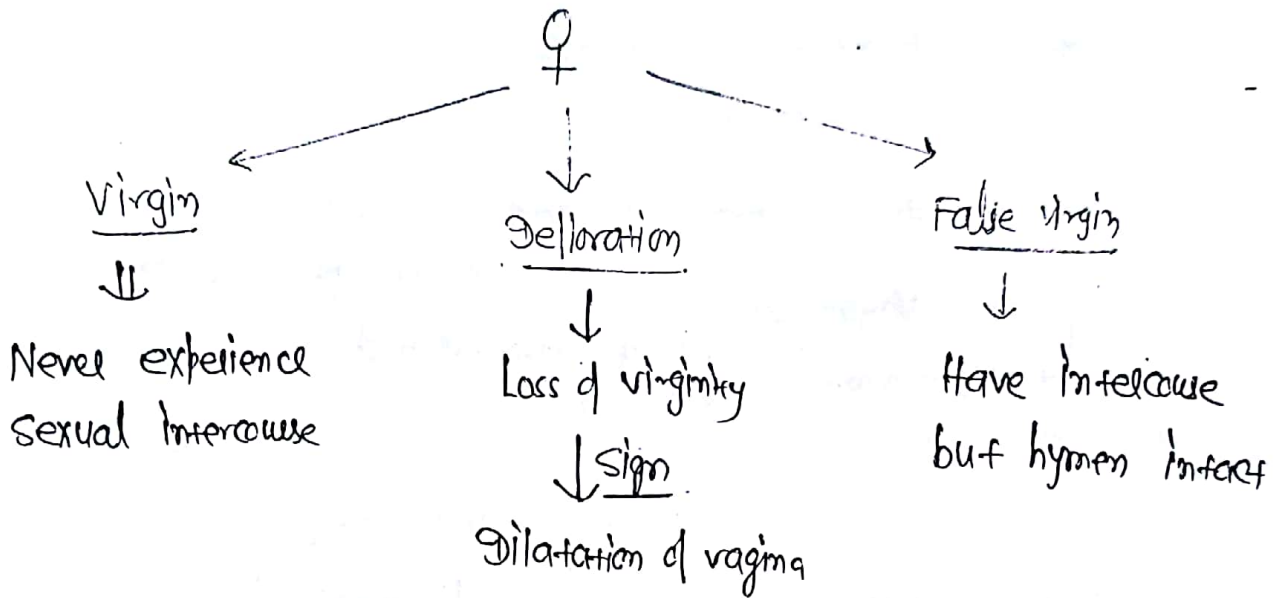
- No Law Regulating Surrogacy in India

Commercial surrogacy - Not allowed

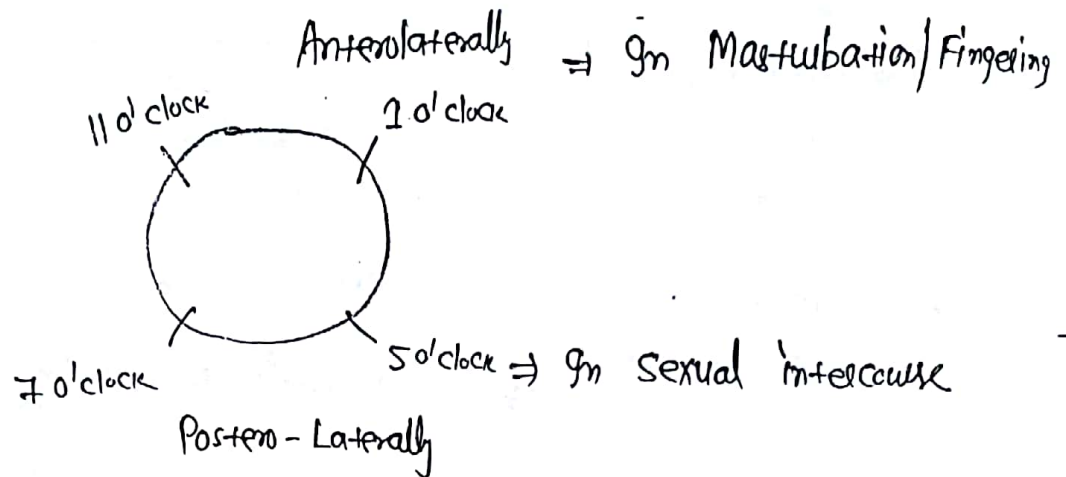
- Only the parents who are infertile (after 5 yr of unprotected intercourse)

Surrogate — close Relative

- should have one child of his own
- only once (excluding failed attempts)



Site of Rupture of Hymen →



Gilchrist Keene Rod →

↳ Instrument used to inspect hymen.

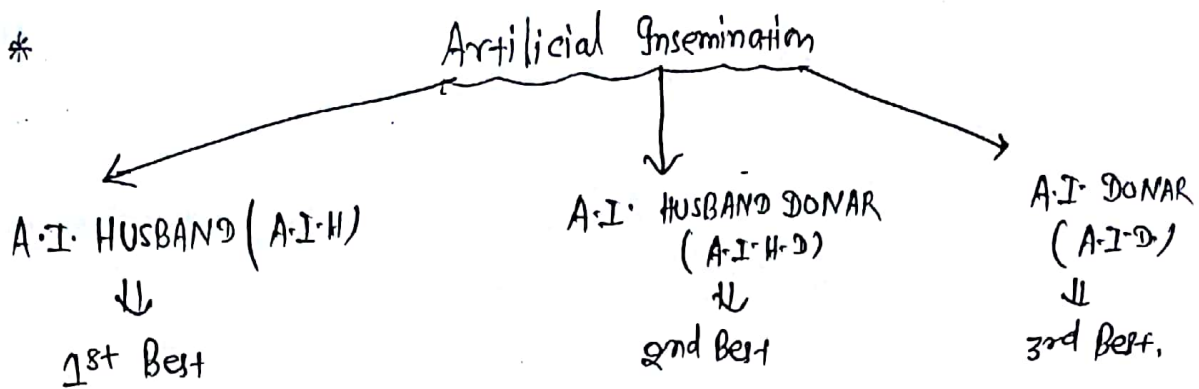
Type of hymen → Crescentic hymen (Mlc).

↳ "kiss" semilunar hymen

↳ Fimbriated hymen Resembles torn hymens.

annular Myriiformes ⇒ Remnants of hymen seen after child birth.

	<u>Nullipara Uterus</u>	<u>Paras uterus</u>
Cavity ⇒	Wall convex from inside	Concave
External os ⇒	Circular	Slit like
	<u>True virgin</u>	<u>False virgin</u>
<u>Intactness</u> ⇒	Hymen intact & inelastic	Hymen intact but elastic
<u>Hymen opening</u> ⇒	Barely admit tip of little finger	Admits two fingers easily
<u>Edges</u> ⇒	Distinct	Undulated.



- * APTAE VIRIS ⇒ Making a female fit for sexual act/intercourse
- * NONAPTAE VIRIS ⇒ A female Not fit for sexual intercourse

BATTERED BABY SYNDROME

- * → K/as "Cobbler's syndrome"
- Non-accidental injury of childhood
- Features —
- Repeatedly come for Rx ;
↳ But come late
 - Inconsistent history & examination;
 - Different age of injury are found.

- Most imp. clinical features —
- Oblique # / spiral #
 - SDH can be seen
 - Shaken Baby syndrome
 - Infantile whiplash sx
 - String of beads appearance : seen on chest
 - Six penny bruises

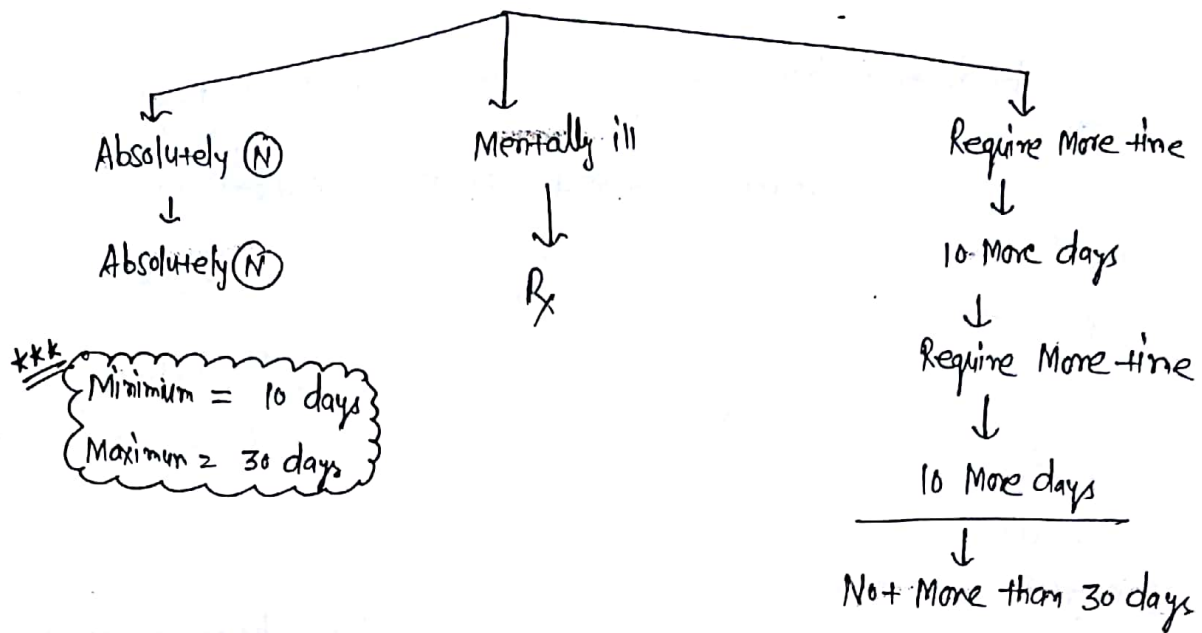
MENTAL HEALTH ACT, 1987

- Before this: In India there was "Indian Lunacy Act 1912"
- Replaced by Mental Health Act, 1987
- Mental Health Care Act, 2017 ← Replaced by

- * "Mentally ill person" is to be addressed (pt) Should produce Magistrate passes Reception
In front of
Admitted to Mental

* In these 10 days; 2 doctors Examine thrice
2 Doctors
3 examination

(41)



* MTP ACT, 1971

Last Amended ⇒ 2003

• Based on Declaration of OSLO: (Therapeutic Abortion)

- Humanitarian - Rape
- Eugenic ground - Chromosomal Anomalies
- Social ground - Failure of contraception
Poor Socio-economic condⁿ of Parents
- Therapeutic ground - If Mother's Life is Endangered

*

< 12 wks : 1 Doctor

12-20 wks : 2 Doctors

> 20 wks : Under therapeutic grounds only (irrespective No. of doctors; irrespective of experience; irrespective of knowledge)

* Consent of Husband is Not Required;

* Consent of only women is Required (if she is over 18 yrs & sane).

Consent of Parents/guardian is Required if she is below 18 yrs or above 18 yrs but insane

MTP (Amendment) Bill, 2014 (Not Act)

* Should be increased till ≤ 24 wks

* Not only Allopathic; but also Elite doctors should be allowed
(Ayurvedic / Unani)

THANATOLOGY

— Study of death in all aspects

— Bichat/Bishop \Rightarrow Tripod of Life

— Brain	<u>Stop functioning</u> \rightarrow	Coma
— Heart	\rightarrow	Syncope
— Lung	\rightarrow	Asphyxia

Modes of death / Atria, Mortis

(X)

Not Mention in Death certificate

Somatic / clinical death \Rightarrow Some cells are died; Some are alive

\downarrow (1-2 hrs) \rightarrow Subvital period

cellular / molecular death

After death (0.5-1 hr) \rightarrow Topically instill 1% Atropine in eye

\downarrow

??? Pupil

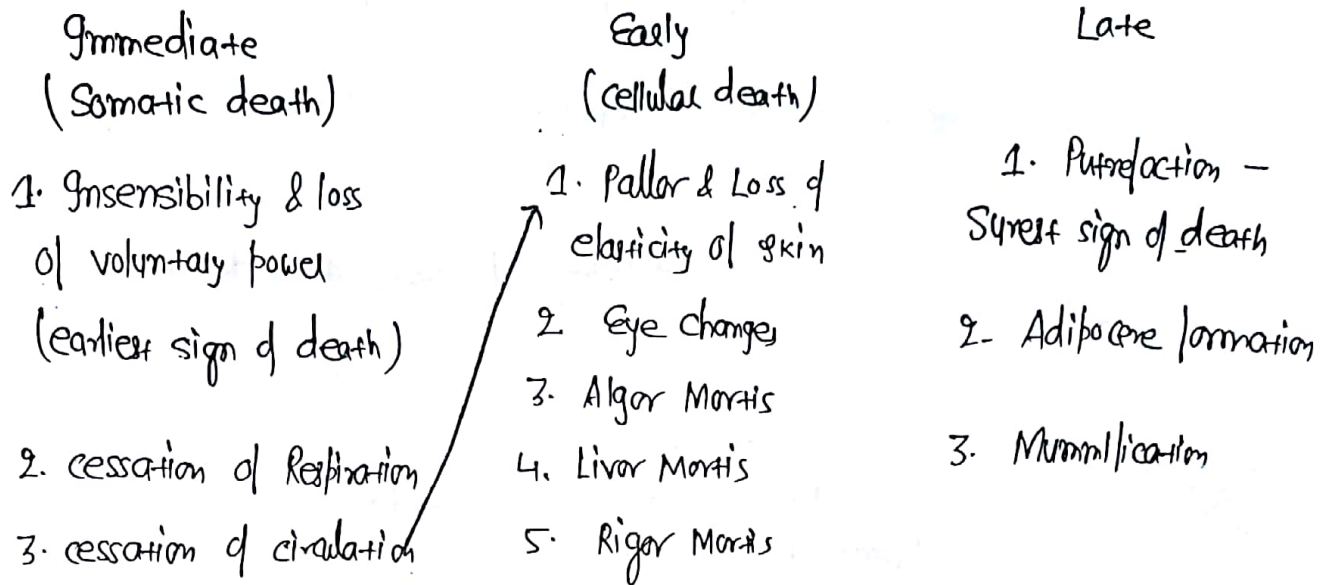
\rightarrow Irregular dilatation of Pupil

b/c only live cells are Responding; dead cells are also \otimes

Tsako's Phenomenon \rightarrow About 1 hr of death

— Knee jerk (elicit)
 \downarrow
contraction of quadriceps.

Post Mortem changes



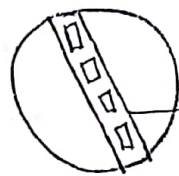
Eye changes

- ↓ in IOP \Rightarrow Earliest $1\frac{1}{2}$ @ death
Zero in 2 hrs.

- Rise of Potassium in vitreous humors (MIDEA'S FORMULA
STURNER'S Equation)

- Cornea \Rightarrow Hazy in 2 hrs.

- Kevorkian sign / cattle trucking \Rightarrow Trucking of blood in blood vessels
 \hookrightarrow Seen in Minutes ; by ophthalmoscope.

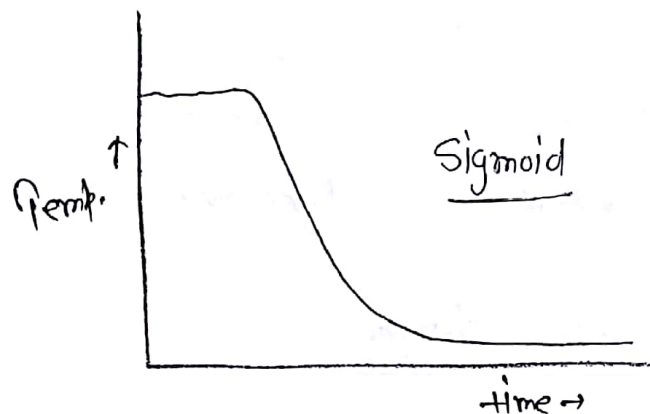


Trucking of blood d/t cessation of circulation

Sign seen Maxm upto 2 hrs. (till cornea become hazy).

Tache Noir \Rightarrow Accumulation of Debris on sclera
 \Rightarrow Eyelids - open after death
 \Rightarrow About 3 hrs.
 \hookrightarrow Resembles to Pterygium.

ALGOR MORTIS \rightarrow Cooling of body After death



- temp. doesn't fall till 30-60 min. after death.

- Recording body temp. \Rightarrow (a) Rectum

\hookrightarrow but in sodomy

by "Thanatometer"

\hookrightarrow inferior surface of Liver

Length \Rightarrow 25cm

(b) Tympanic Membrane

(c) Intranasal = cribriform plate

- Rate of cooling \Rightarrow $0.5 - 1.5^{\circ}\text{C/hr}$ OR $1.5^{\circ}/\text{hr}$

\downarrow Summer \downarrow Winter

Q. on 25th June 7am, $R/T = 31^{\circ}\text{C}$. Time since death?

1. 23/6, 7PM

2. 24/6, 7AM

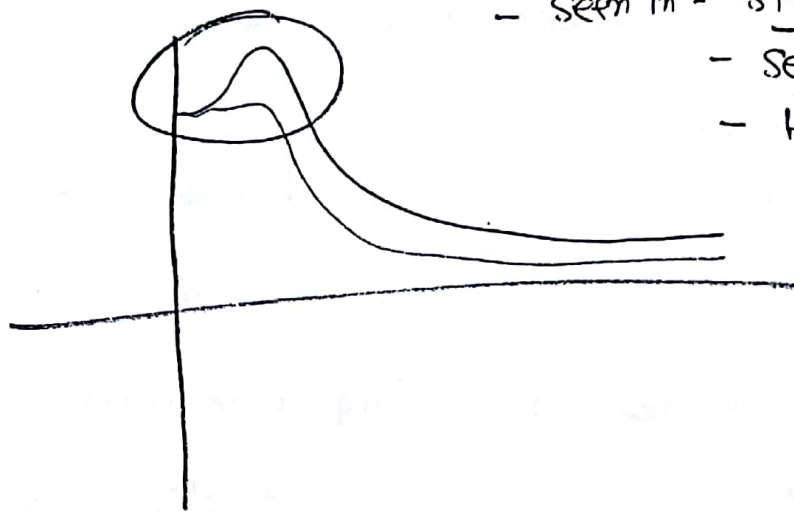
3. 24/6, 7PM

5. 25/6, 7PM

Post Mortem calorificity

(43)

Rise of Body temp. 1-2 hr of death.



- seen in - Strychnine poisoning

- Septicemia

- Heat stroke

Hypostasis / Livor Mortis / PM staining / cadaveric lividity / Suggestations /
vibias / Darkening of death.

- Gravitation of blood in dependent parts

- Area of Surface Flattening / contact flattening

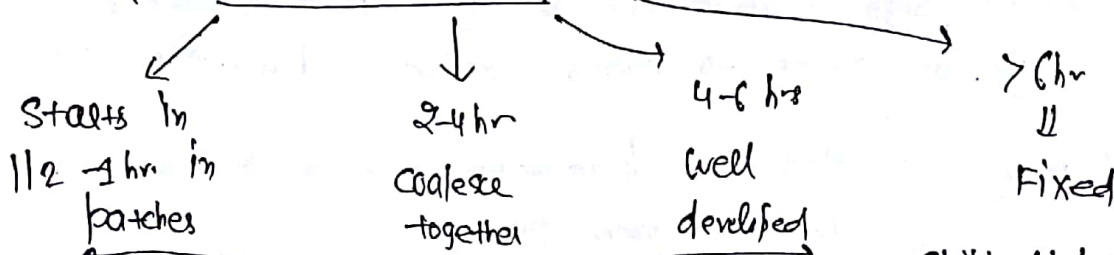
- Uses - 1. Posture of body

1st seen over Neck - supine position

Glove & stocking position of Hypostasis \Rightarrow Hanging

if body is continuously flowing in water \Rightarrow No Hypostasis

2. Time since death



3. Cause of death \Rightarrow a) colour changes in hypostasis;

See in Forensic Medicine
simplified
on bb page

b) Indices for determining gender;

c) different declarations;

d) Torture

e) smell in different poisoning



(N) colour after death \Rightarrow Bluish-purple colour.

<u>Poisoning</u>	<u>colour</u>
i) CO	cherry Red
ii) CN	Bright / Brick Red
iii) Nitrate / K ⁺ chlorate	Reddish Brown
iv) Aniline	Reddish Brown > Blue
v) Phosphorus	Dark Brown
vi) Hydrogen sulphide (H ₂ S)	Bluish green
vii) KCN	Deep blue
viii) opium	Black
ix) Hypothermia	Pink

DIFFERENT DECLARATIONS

DATE 05, 12

① Declaration of Tokyo (1975) \Rightarrow Says about "Torture & Medicine"
 \hookrightarrow Says A doctor can't use his Medical knowledge for torture.
 \hookrightarrow It pertains to offences committed to board Aircraft (SAR)

② Istanbul Protocol \Rightarrow deals w documentation of torture in torture victim.
How to document TORTURE.

- (3) Declaration of Istanbul \Rightarrow Deals \bar{c} Organ trafficking. (44)
- (4) Declaration of Oslo \Rightarrow Deals \bar{c} Therapeutic Abortion;
- (5) Declaration of Geneva \Rightarrow Modernization of Hippocratic Oath;
- (6) Declaration of Helsinki \Rightarrow Deals \bar{c} Human Experimentation & clinical trials;
- (7) Declaration of Lisbon \Rightarrow Deals \bar{c} Patient - Rights;
- (8) Declaration of Sydney \Rightarrow Deals \bar{c} Brain death,
- (9) Declaration of Malta \Rightarrow Deals \bar{c} Role of doctor in Hunger strike

- \Downarrow
- Can't interfere to ones hunger strike
 - Forceful feeding is Not allowed,

\Downarrow

but if any govt. officers (eg = Narendra Modi) told to break the strike

\hookrightarrow then by Article 21 we can force people on hunger strike to eat,

- (10) Declaration of Hamburg \Rightarrow Support for doctors refusing to participate in or other form of cruel; inhuman or degrading treatment
- (11) Declaration of Munich \Rightarrow Racial; Political discrimination in Medicine.
- (12) Declaration of Venice \Rightarrow Terminal illness
- (13) Declaration of Seoul \Rightarrow Deals \bar{c} Professional Autonomy & clinical independence
- (14) Declaration of Madrid \Rightarrow Deals \bar{c} Professional Autonomy & self Regulation.

INDICES FOR DETERMINING GENDER

Indices

	♀	♂
1. Ischiopubic Index (Washburn's Index) $\left(\frac{\text{Pubic Length}}{\text{Ischial Length}} \times 100 \right)$	91 to 115	73-94
2. Pubic Ramus Ratio	2:1 or greater	1:1
3. Sternal Index $\left(\frac{\text{Length of Manubrium}}{\text{Length of Body}} \times 100 \right)$	54.3	46.2
4. Corporo-basal Index $\left(\frac{\text{Breadth of 13th Sacral vertebra}}{\text{Breadth of base of Sacrum}} \times 100 \right)$	40.5	45
5. Sciatic-Notch Index $\left(\frac{\text{Width of Sciatic Notch}}{\text{Depth of Sciatic Notch}} \times 100 \right)$	5 to 6	4 to 5
6. Sacral Index $\left(\frac{\text{Transverse Diameter or Breadth of base of Sacrum}}{\text{Length of Sacrum}} \times 100 \right)$	116	112

INDICES TO DETERMINE RACE

<u>INDICES</u>	<u>EUROPEANS</u>	<u>NEGROES</u>
7. Crural Index $\left(\frac{\text{Length of Tibia}}{\text{Length of Femur}} \times 100 \right)$	83.3	86.2
8. Brachial Index $\left(\frac{\text{Length of Radius}}{\text{Length of Humerus}} \times 100 \right)$	74.5	78.5

9. Intermembral Index

$$\left(\frac{\text{Length of Humerus + Radius}}{\text{Length of Femur + Tibia}} \times 100 \right)$$



EUROPEANS

.70

NEGROES

.70

(45)

TORTURE

* M/c Form of torture : Beating
 ON SOLES → FALANGIA
 ON EARS → TELEFONO

* Dry Submarine ⇒ Tying a plastic bag over the head until Suffocation.

↳ Can we tell A.M. or P.M. death? Yes

* Wet Submarine (Latina) ⇒ Forced immersion of head in water contaminated w/ urine or feces.

* Picama ⇒ Electric torture.

* LA PARILLA ⇒ Tie a person to electrometallic grill.

* PLANTON ⇒ Torture by prolong standing;

* STRAPPEDO ⇒ Tie hand behind person & suspend Alas La Bandera

* PARROT'S PEARCH :-

* CATTLE PROD ! Electric shock over genitals,

* CHAPUWA !

* GHOTNA !

* DUNKING ! Victim immersed into water, taken out after some time and given chance to confess.

* SHAM EXECUTION ! और वंद करके रीट पर गाड़ी के सामने दौड़ देना

RIGOR MORTIS / CADAVERIC RIGIDITY

- Stillness of the Muscle after death.

- Initially \Rightarrow $\left[\begin{array}{l} 100\% \text{ ATP} \\ @ \text{ death (assumed)} \end{array} \right] \rightarrow \text{Relaxed}$

$\left(\begin{array}{l} \text{No. of bonds Making} > \text{No. of bonds} \\ \text{breaking} \end{array} \right) \leftarrow 85\% \text{ ATP} \rightarrow \text{RM starts}$

\downarrow
15% ATP \rightarrow RM Max^m; Stillness Max^m

\downarrow
2^o Flaccidity $\left[\begin{array}{l} \text{Decomposition} \\ \text{Autolytic enzymes} \end{array} \right] \rightarrow \text{Relaxed condition}$

- Relaxation immediately after death \Rightarrow 1^o Flaccidity.

- 1st affects \rightarrow firstly in Involuntary Muscle

\swarrow Involuntary \searrow Voluntary Muscle
 \downarrow \downarrow
 1st Muscle \Rightarrow Heart affected 1st Muscle = eyelid

RM not seen in \Rightarrow Fetus & Less than 7 Months

PM changes in RM \Rightarrow Heart \rightarrow Eyelid \rightarrow back \rightarrow Neck \rightarrow Lower jaw \rightarrow Nysten's Rule

Passes all in same manner \downarrow

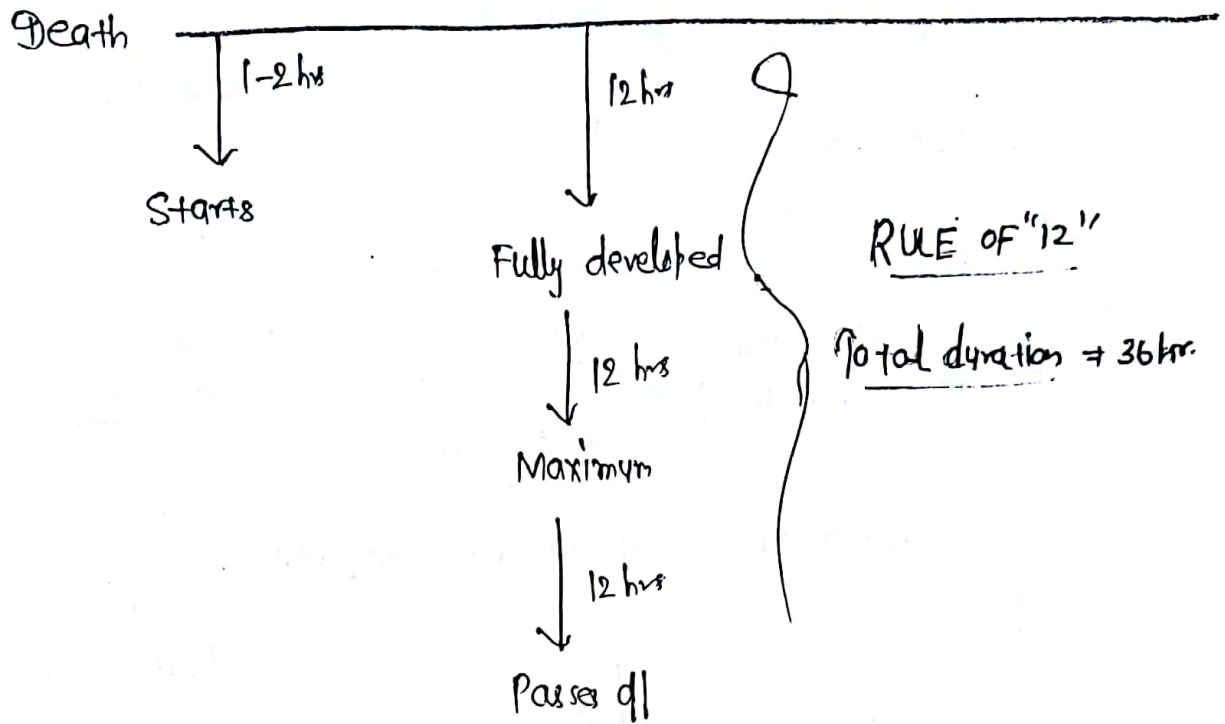
Head to toe
 (curved arrow)
 K/a

Abdomen \leftarrow Upper Limbs \leftarrow Chest

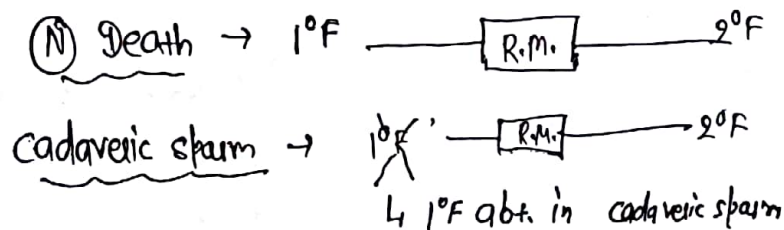
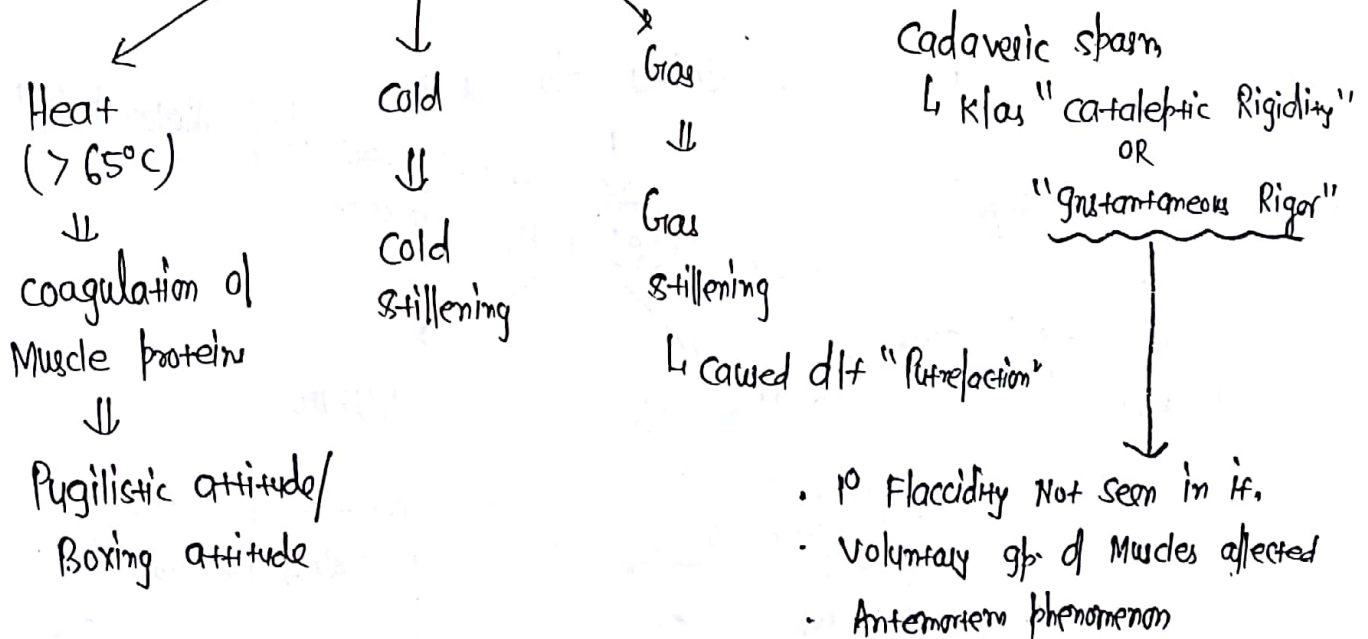
\rightarrow Lower Limbs

Shapiro's proximodistal Progression theory

Duration of Rigor Mortis ⇒



Differential diagnosis of Rigor Mortis ⇒



* Differentiate b/w Rigor & cadaveric spasm \Rightarrow

Cadaveric spasm

Cellular death \Rightarrow (X)

in supravital period

Rigor Mortis

cellular death \Rightarrow (✓)

Electrical \Rightarrow (+)

stimulus

Medico legal \Rightarrow
Importance

Indicates circumstances
& Mode of death.

PUTREFACTION

(-)

Indicates time
since death.

*

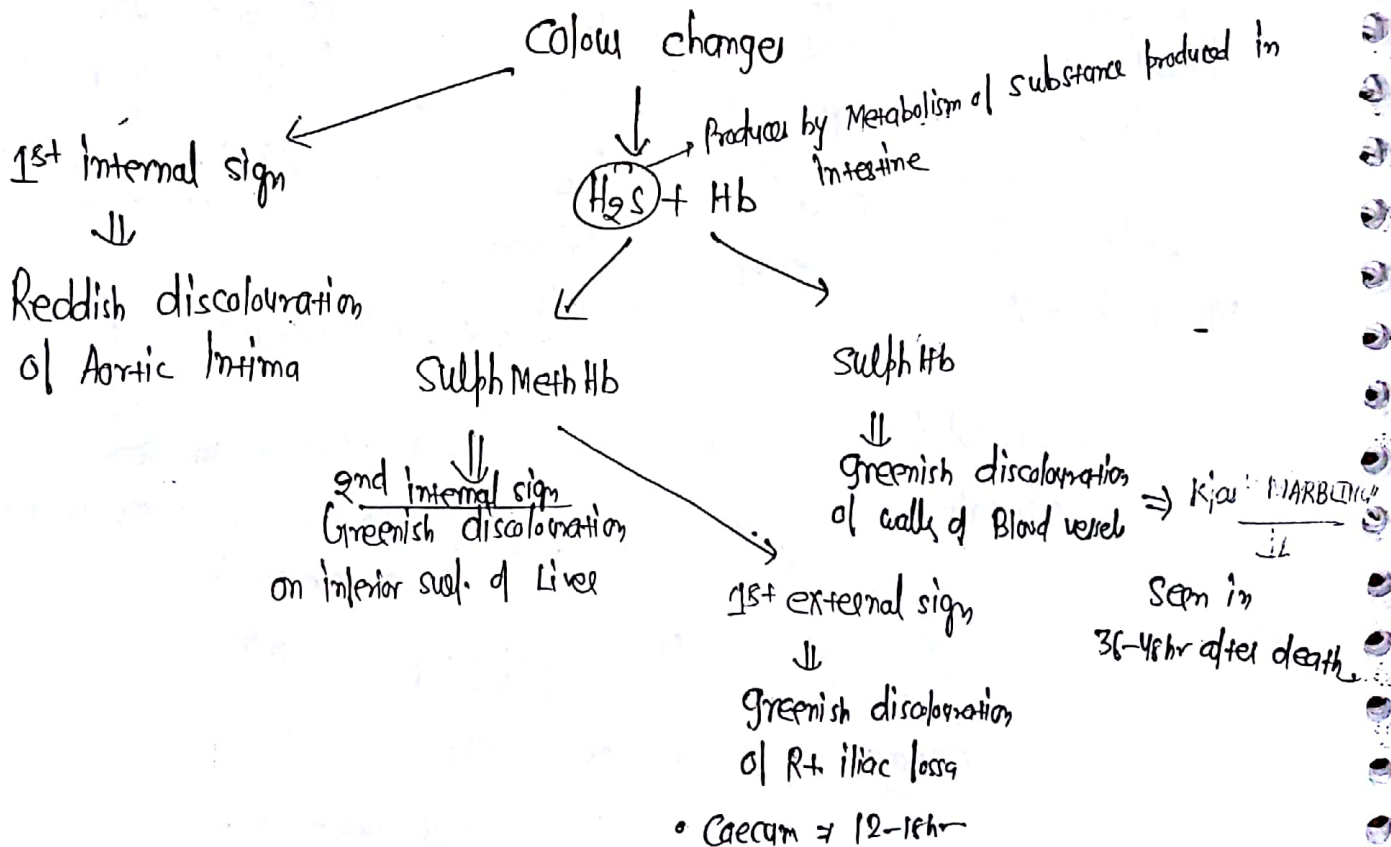
M/c organism Responsible for Putrefaction \Rightarrow C. welchii

\Downarrow
produce "Lecithinase"

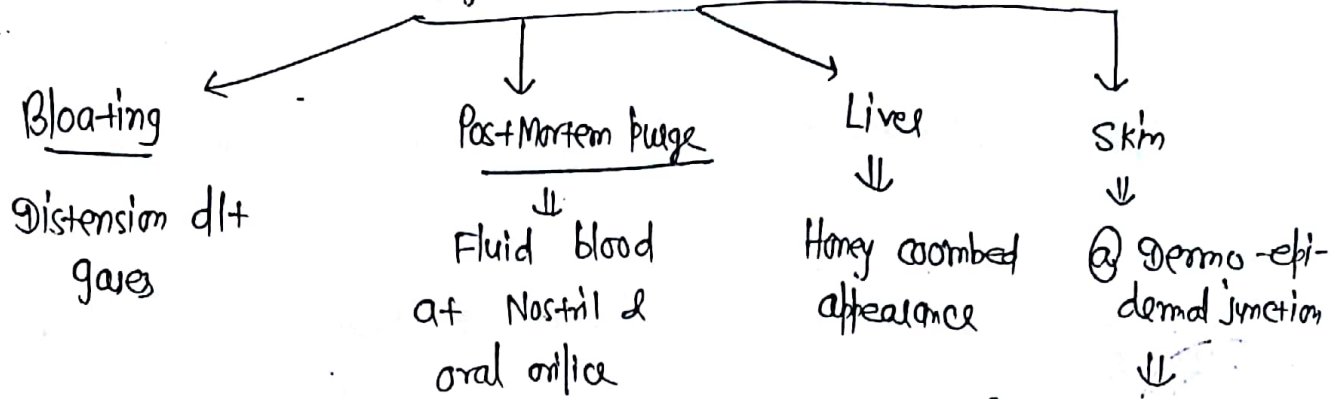
Colour changes

Graves

Liquefactive Necrosis



Changes of + gases



NEED

* 3 conditions are Necessary for Putrefaction : \Rightarrow

1. Warmth ($10-45^{\circ}$)
2. Moisture (Humidity)
3. Air

Liquefactive Necrosis

\Downarrow
Seen in 5 to 10 days

* 1st organ to Putrify \Rightarrow

Larynx & Trachea

\downarrow
Spleen

\downarrow

Brain

\downarrow

Heart; Kidney

Last organ to Putrify \Rightarrow

Bone

\downarrow
Tendon

\downarrow
Skin

\rightarrow

Prostate

\rightarrow

Non-gravid uterus

Temp. optimal for Putrefaction -

\downarrow

$21^{\circ}\text{C} - 38^{\circ}\text{C}$

Post Mortem Luminescence (Glowing of body after death).

d/+ Photobacterium

d/+ Armillaria

Casper dictum \Rightarrow Fast in Air; then water & then after soil.

- Rate of decomposition

\downarrow

Air:	Water:	Earth
1:	2:	8

In Absence of Air
Colour \Rightarrow Greyish white
- OR -
flesh (NEET/11)
ADIPOCERE

In Absence of Moisture
Colour = Rusty Brown to Black
MUMMIFICATION

- Saponification of Fats

- M/c \Rightarrow Palmitic acid

\hookrightarrow Produce Glycerine; who

- Require warm & Moist Atmosphere

State Saponification:
S.M.M.H
Atm. Remove
Glycerine

- Dessication / Drying of tissues

- Dry & hot atmosphere

- Ammoniacal odour

- Odourless

- Cheesy

- Sweet

- takes about 3 months - 6 months

- takes about 1 yr. to develop

- In India \rightarrow 3 days

- Chronic As & Antimony Poisoning

\downarrow
Favours Mummification

- Useful in

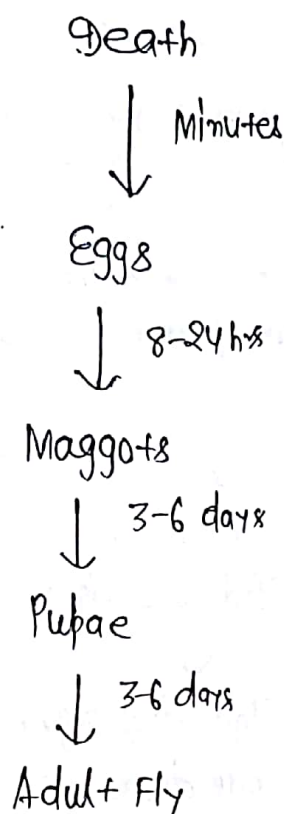
\rightarrow COD
Time since death

\leftarrow useful in

Identification (Facial features are preserved only in early stages)

ENTOMOLOGY

⇒ Delayed in Rainy seasons

Study of Insects

* Pink teeth in decomposed bodies is seen in death dlt seepage of Hb in dentinal tubules.

NEET

1st organ to be involved in Mummification ⇒ Skin of exposed body parts like Lips; Nose-tips; Hands (Finger) & Feet (toes)

Q. Which of the following is Not suggestive of Inhalational burn injury?
 (a) Yellow sputum; (b) Singeing of hair; (c) Facial burn; (d) Hoarseness of voice

Q. The causative electrode of electric injury can be identified by :-
 (a) Arc Rxn;
 (b) Current Pencil;
 (c) Bone Pencil;
 (d) Wax dripping

ROUTINE AUTOPSY

Incision !→

"I" SHAPED

⇒ (M/C) Start from chin
goes in Midline upto Pubic symphysis



"Y" SHAPED

⇒ Start from Mastoid; goes
to Midsternal Notch → Pubic symphysis



"MODIFIED Y" SHAPED

⇒ Start from Substernal Notch.



* In case of Suspected torture the skin incision used ⇒ "X" SHAPED.
↳ from Tip of shoulder → Angle of Lewis → Pubic symphysis

Techniques to examine Internal organ

Rokitansky

In situ



Organs cut &
Left inside
body

Ghon

En Bloc



organs are
removed in
Blocks

Virchow

Individual organ



Individual organs
are dissected

Letuelle's

En Masse



All or everything
at once from
tongue till Rectum

Cavity opened first

Head



Head Injury

Poisoning → Head (Smell of Poison)

Asphyxia

No COD Mentioned

Lastly opened

Neck

Abdomen



Infanticide

Thorax



Air emboli

Viscera preserve in Routine Autopsy

1. Stomach : \bar{c} all contents;
2. Intestine : 30 cm of proximal intestine;
3. Blood : 30 ml of blood (taken from Femoral vein; ^{aa} Min^m 10 ml should be preserved)
4. Liver : 1/2 Kg of Liver; should be preserved;
5. Kidney : 1/2 of each kidney should be preserved;
7. Spleen : Full spleen should be preserved

Heart Dissection

(50)

- Inflow outflow technique

- RA → RV → LA → LV ⇒ Sequence of chamber opened

Spinal cord

Posterior

Best

Anterior

M/c.

Poisoning

During Post mortem we preserve viscera ; b/c of some poison have specific character

Digoxin ⇒ Heart is preserved

Strychnine ⇒ Brain | spinal cord

Alcohol ⇒ CSF | vitreous | blood | urine | stomach | Liver

Anesthetic volatile agent poisoning ⇒
a) Lungs in Nylon bag
↳ Non-absorbable
b) Mesenteric Fat
↳ also in OPC poisoning

Im. Injection ⇒ Site of injection preserved

Bile / gall bladder ⇒ Morphine | Barbiturates

Cocaine poisoning ⇒ Nasal swab

Best Preservative ⇒ Rectified spirit (90% alcohol)

Not used
Rectified spirit.
we NaCl

Phosphorus
Alcohol
Phenol
Paraldehyde
Acetic acid

Best preservative ⇒

Inhibits glycolysis
II
enzyme
100mg / 10ml
also in M. & N. Corneal staining

NaF

* M/c Preservative \Rightarrow NaCl
 \Downarrow
Not used in

- Corrosive
- Acetate
- Corrosive sublimate

* Urine = Toluene > Thymol

* Rotten fruit @ \Rightarrow Na Meta bisulfite
crime scene

Formalin
 \Downarrow
Used as preservative
in HPE.

* Uric acid crystal \Rightarrow Alcohol

* virological examⁿ \Rightarrow 80% glycerol

* DNA \Rightarrow Nucleated

Blood \rightarrow EDTA vials

Hair \rightarrow Plucked

Spleen

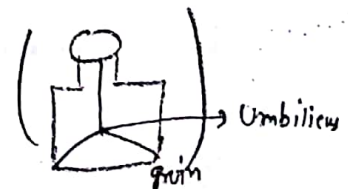
Muscle

Blood for culture
 \Downarrow
SPS
(Sodium Polyanethane
Sulfonate)

FETAL AUTOPSY

Incision \Rightarrow M/c \Rightarrow "I" shaped

Preferred \Rightarrow Inverted "Y" shaped



technique for operating fetal skull \Rightarrow

Beneke's technique \Rightarrow 2 Flaps

Baer's technique \Rightarrow 4 Flaps

Age of Fetus

Haase's Rule

Up to 5 mths

$$\text{CHL} = 25 \text{ cm} \quad \text{Crown Heel Length}$$

$$\text{Age (Mths)} = \sqrt{\text{Length (cm)}} -$$

Morrison's Rule

6-10 mths

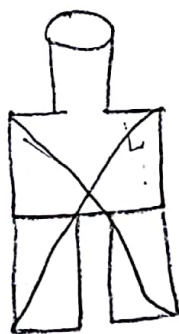
$$\text{Age} = \frac{\text{Length}}{5}$$

$$\text{Crown Rump Length} = \frac{2}{3} \text{ Crown heel Length}$$

*

X-shaped Incision \rightarrow done in Torture

- kept the body in prone position



Q. Pseudocyesis is usually observed in:

- ☒ (a) Childless wife Nearing Menopause;
- ☐ (b) Males who are impotent to a particular woman;
- ☐ (c) Unmarried woman in whom contraceptive has failed;
- ☐ (d) Young Married woman in illicit sexual relation with colleague

Q. Initial damage to carotid A. is a/w death of:

- ☒ (a) Hanging with a drop; ☐ (b) Ligature strangulation; ☐ (c) Manual strangulation;
- ☐ (d) Traumatic asphyxia

Q. Following are the characteristics of Ligature Mark of fixed Noose in hanging except that they:

- ☐ (a) Are oblique; ☒ (b) Are continuous; ☐ (c) Are high up on the Neck;
- ☐ (d) Show Parchmentization

Q. Yes in what is suggestive of Antemortem drowning

- ☒ (a) Strabismus; ☐ (b) Mg; ☐ (c) K; ☐ (d) Ca

Problem is with

Still Born

Live Born

1) Position of Diaphragm \rightarrow

3-4th Rib

6-7th Rib

(That's why we open
abdomen 1st in Gn/anticoide)

1) Fodere's test / static test \rightarrow

30-40gm

60-70gm

why? b/c of blood

(Weight of Lungs)

1) Plouquet's test \rightarrow

1:70

1:35

Ratio of wt of Lungs : wt of body)

1) Breslau's 2nd Lile test \rightarrow

(-)

(+)

(Air in Stomach)

(Not pr.)

(Air is pr.)

1) Werdn's test \rightarrow

(-)

(+)

Air in Middle ear)

Hydrostatic Flotation
test

(-)

(+)

ka) Rayga's test

"rev" as CONTROL)

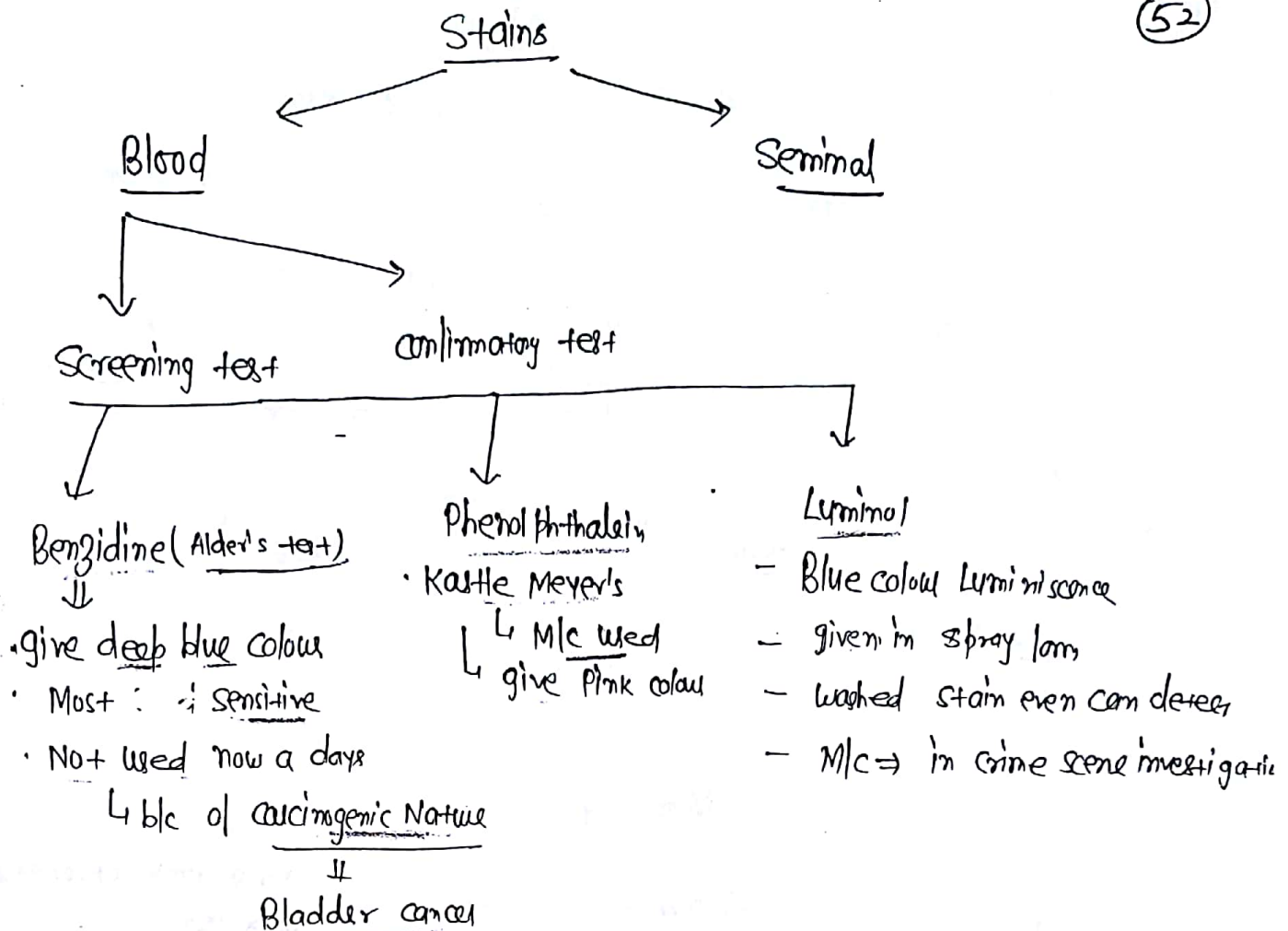
3+ for Residual Air

(SIB) False (+) Rayga's test

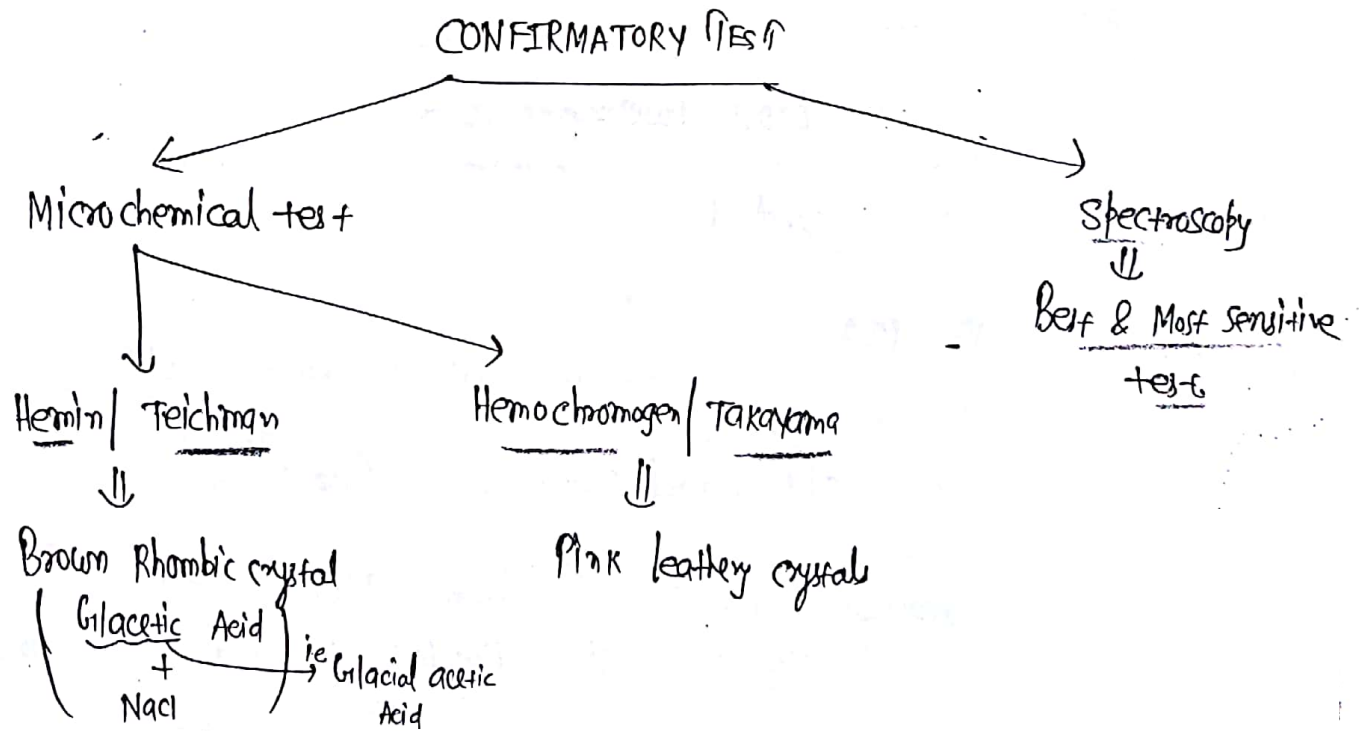
- Artificial ventilation
- Decomposition

(LIB) False (-) Rayga's test

- Feeble Respiration
- Alveolar Membrane (prevented
Air entry into alveoli)
- ARDS
- Atelectasis



• old blood stains (used for)



Seminal stain

a) In Uv Light \Rightarrow Blue/white coloured Fluorescence

b) Chemical test \rightarrow dlt choline in serum

Florence

\Downarrow

Brown Rhombic
crystal of choline
per iodide

Barbenio's

\Downarrow

Needle shape Rhombic crystal
of spermine
picrate

Acid Phosphatase

\Downarrow

Best test

c)

Microscopy (Best)

— Confirmatory test

\hookrightarrow b/c even a single chromatophore
can be seen.

— Christmas tree stain

d)

LDH isoenzyme assay

— 2nd Best

e) P30/PSA

f) MHS-5

g) CPK — old seminal stains — upto 6 months old

Vagitus vaginalis \Rightarrow Cry of Unborn child in vagina

\hookrightarrow Not say child is Live birth; b/c child Not coming out.

* Under which section Infanticide Punish \Rightarrow Sec. 302; Sec. 315

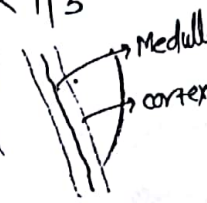
Vagitus Uterinus \Rightarrow Cry of child in Uterus.

HAIR


- Examination of Hair can tell \Rightarrow i) Identification \Rightarrow of Individual (accused; victim);
- ii) Source of origin \Rightarrow whether is of Human or Animal

Human Hair

- Fine & thin
- Medullary Index $< 1/3$

$$\left(\frac{\text{Width of Medulla}}{\text{Width of cortex}} \right)$$

- Evenly distributed Pigment

Animal Hair

- Coarse & thick
- Medullary Index $> 1/2$

- \oplus Near the medulla

iii) Sexual offences;

iv) Crime;

v) Hit & Run case;

vi) Identification of Race by hair;

<u>INDIAN</u>	<u>CHINESE & JAPANESE</u>	<u>EUROPEANS</u>	<u>NEGROES</u>
• Straight; black; Long & <u>line</u>	• Straight; black, Long & <u>thick</u>	• Straight; Light Brown; Raddish or grey & short	• Woolly; Curly; black; Short & thick

LEGITIMACY

- (A) Superfecundation \Rightarrow Two ova Released in same cycle; Fertilized; either during same act of coitus or during the separate acts,
 • Possibility of twin having two fathers
- (B) Superfetation \Rightarrow During the continuation of development of Fetus; Another ova Released in subsequent cycle get fertilized & starts developing as a second betw,
 Can Result in \Rightarrow Twin having two fathers;
 Two children being born together in different stages of development;
 Female may deliver twice in 1-3 Months
- (C) Suppositious child \Rightarrow Fictional claim of child
- (D) Posthumous child \Rightarrow child born after the death of his biological father

TOXICOLOGY → Father ⇒ Paracelsus (NEET)

— Drugs & cosmetics Act, 1940 ^{AI-14} (Its Main aim is to control quality, Purity & strength of drug).



Drugs & cosmetics Rule; 1945 ^{AI-14} Father of Modern toxicology



Schedules



Mathieu orfila.

[C]
Biological
agents

[E]
Poisonous
Substance

[F]
Vaccines
& sera

[H]
Prescription
drugs

[S] ^{JIPMER}
Standard of
cosmetics

Best Emetics to vomit the ingested Poison



Syp. of Ipecac ⇒ 30ml

Best Purgative ⇒ Sorbitol

↳ Loosen stools & per bowel Movements

— Best Diaphoretic ⇒ Pilocarpine

↳ per sweating & eliminated Poison by sweat

Antidotes

Physical/Mechanical

1. Bulky food

↳ for Glass/Metal

2. Demulcent

↳ Acids

3. Activated charcoal

↳ MOA = Adsorption

Chemical

1. KMnO₄ ⇒ Opium;

Phosphorus;

2. Mgo ⇒ Acids

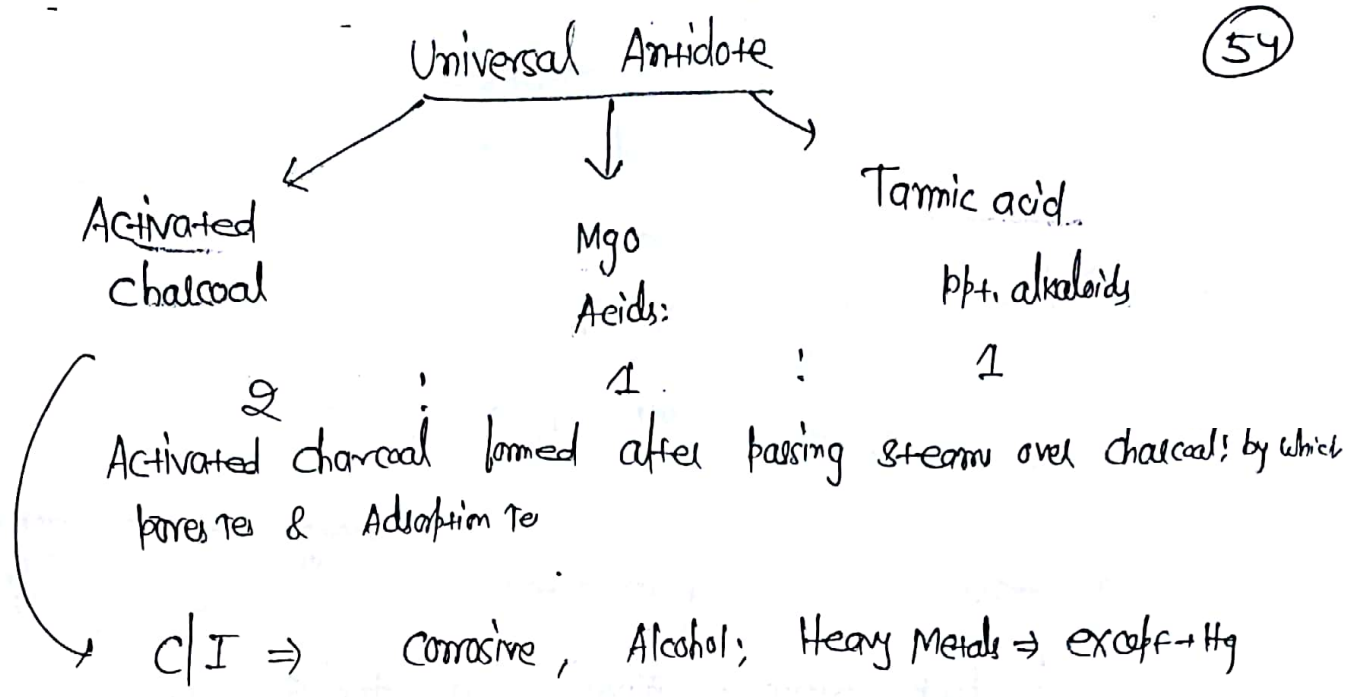
Physiological

1. Receptor

Shatwa ⇒ Physostigmine

Opium ⇒ Naloxone

Chelating agent

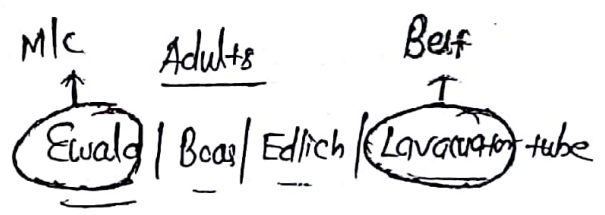


Gastric Lavage

Tube

Children

Ryle's tube



Best Position to do Gastric Lavage \Rightarrow Left Lateral

Best Fluid to start Gastric Lavage \Rightarrow Plain water

M/C Fluid used in Gastric Lavage \Rightarrow Normal saline

KMnO₄ used in 1:5000 dilution
 \hookrightarrow in alkaloide Poisoning

Golden Period for doing Gastric Lavage \Rightarrow < 3 hrs

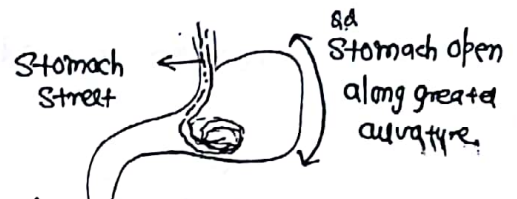
\rightarrow C/I \Rightarrow corrosive \Rightarrow cause perforation \Rightarrow except \Rightarrow Phenol / Carboric acid
Leathery / thickened \leftarrow

Relative CLT \Rightarrow

Kerassene
Convulsant / Anticonvulsant
Coma
Hypothermia
Lower esophageal varices

Magenstrasse \Rightarrow

Stomach Street



\hookrightarrow Path taken by poison in the stomach

As Poisoning

As_2O_3 — White As; Sankhya

King of Poisons \rightarrow Fatal dose — 0.1–0.2 gm

Fatal Period \rightarrow 1–2 days

Poison of King \rightarrow Napoleon died due to As Poisoning

Arsenophagists \Rightarrow tolerate As upto — 0.3 gm

Clinical feature

Fulminant

3–5 gm As consume

Death in 3 hrs

Gastroenteric form

Cholera

Sequence of symptom \rightarrow

As

Cholera

Throat Pain
vomiting
purging

\uparrow

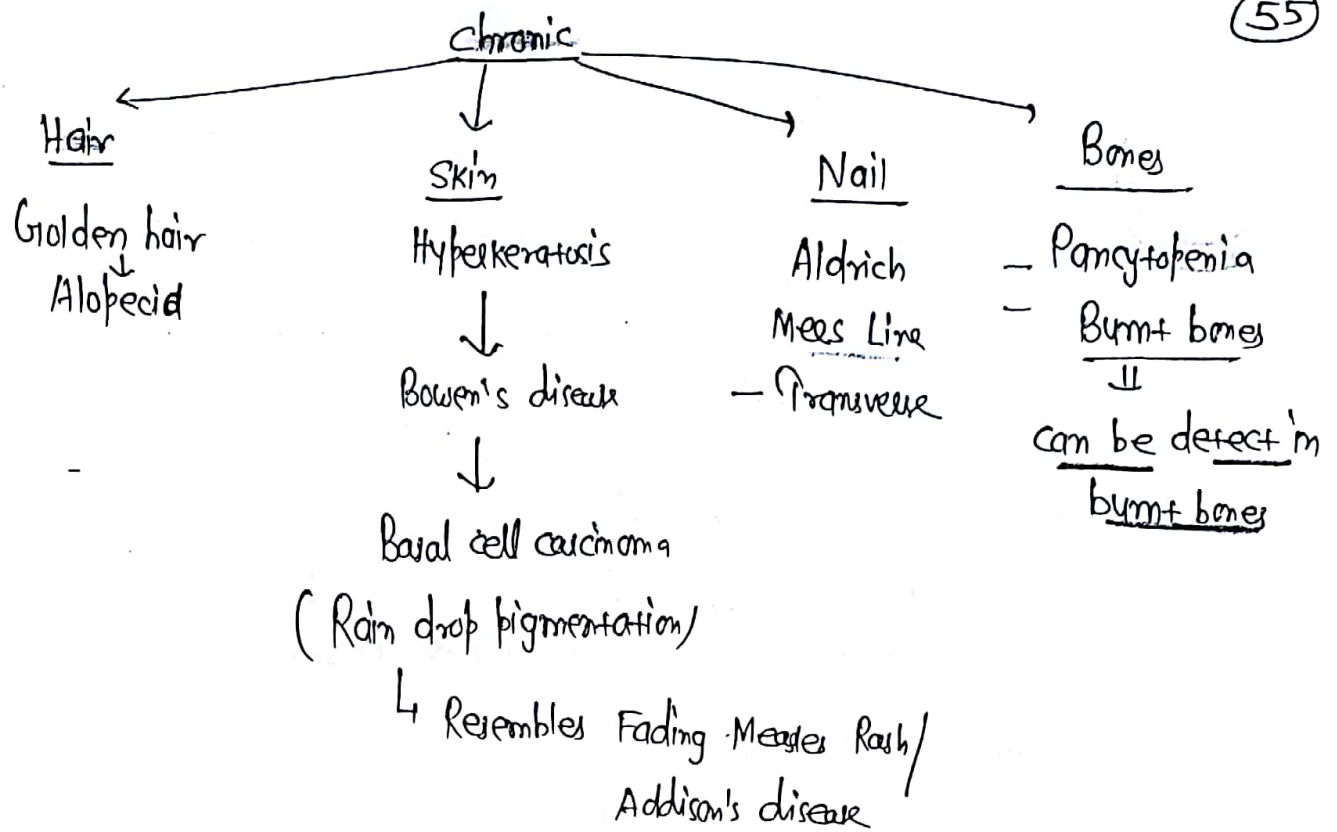
Chronic

Nervous form

convulsion; coma

Liver \Rightarrow M/C organ for As (Maximum)

Kidney \Rightarrow Brain has least amount of As
L.L. A. d. m. m. m.



- also causes Fatty Liver; Symmetric peripheral sensorimotor Neuropathy;
- Catarrhal sign (+) (Resembles Common cold i.e conjunctivitis; Running Noses & eyes; coughing etc)
- Black foot disease \Rightarrow As Poisoning
- viscera preserve in As Poisoning \Rightarrow Hair, skin; Nail; bone + Rotting
- Test \Rightarrow Reimsch > - Marsh > Gutzeit
- Rx \Rightarrow Gastric lavage by freshly prepared hydrated Ferric oxide ^{PGI-94}
- POC \Rightarrow BAL / Dimercaprol
 - \rightarrow b/c cause Fat embolism
 - \rightarrow Deep i.m. (Not i.v.)
 - \rightarrow C/I in \Rightarrow Fe, Cd; selenium
- PM appearance \Rightarrow
 - Stomach - Red Velvety;
 - Heart - Subendocardial Hemorrhage
 - \rightarrow also in Arsenic phosphide & Arsenic

Ideal Homicidal Poison

Thallium

- ↳ Resembles "Gullian - Barre Syndrome"
- ↳ Peripheral Neuropathy
Alopecia
Skin Rash

M/c Homicidal Poison \Rightarrow As

gdeal suicidal Poison \Rightarrow CN Painless death;

M/c Suicidal Poison \Rightarrow OPC

M/c Method of suicide \Rightarrow Hangimg

Para-suicide \Rightarrow M/c \Rightarrow Drug ingestion
↳ मारना वही, किन्तु सस्तर

MERCURY

Organic Mercury

- Methyl Mercury
↳ Most Poison
- In Minamata disease

Inorganic Mercury

$HgCl_2$ - 1-4 gm
↳ Fatal dose

Mercurialism \rightarrow i.v. mercury inj.
Thrombophlebitis
Granuloma
Pulmonary emboli

C/F \Rightarrow Hydargyria \rightarrow Chronic Use of Mercury

- Erethism \rightarrow Neuro-Psychiatric Manifestation
- Gingivostomatitis
- Tremors / Danbury tremors / \rightarrow Coarse tremor
Hatter's shake / Glass blowers' shake.
- Mercuria — Fumes of Hg \rightarrow Deposits of Ant. capsule of Lens \rightarrow Malt Brown Reflex

Personality disturbance
shyness, insomnia, Mad Hatter.
Classical Prod
Earlier

Not affecting visual acuity.

- Strawberry tongue
- Diphtheria like colitis
- Acrodynia / Pink disease (Idiosyncratic HSN Rxn)
- affects proximal convoluted tubules

\hookrightarrow other drugs \Rightarrow Phenol
CCl₄
Oxalic acid
Cadmium
 \hookrightarrow also cause Bone Pain & Muscular Pain
 \Downarrow
• cause "ouch-ouch ds"
• Golden yellow staining of teeth
• Rx \Rightarrow N-acetyl penicillamine

Viscera Preserve \Rightarrow R/V + Hair \rightarrow Reactive viscera

Rx \Rightarrow G/L \Rightarrow Sodium formaldehyde sulfoxylate
Agent of choice \neq BAL

* EDTA is C/I ∇ Hg b'coz EDTA is also Nephro-toxic.

LEAD \Rightarrow No heavy Metal is Poisonous in Native form
^{except \Rightarrow Lead}

- Lead acetate (sugar of Lead) \Rightarrow Fatal dose \Rightarrow 20 gm
- Lead carbonate \Rightarrow Fatal dose \Rightarrow 40 gm
- C/F \Rightarrow
 - Anemia
 - Eosinophilia
 - Basophilic [✓] stippling
- earliest sign \Rightarrow Facial Pallor
- Lead lines in Metaphyseal plate \Rightarrow Recurrent Gouty Arthritis
- (
 - Chronic poisoning \Rightarrow Plumbism / Saturnism
 - Bor-tonian Lines \Rightarrow Blue Lines @ teeth & gum junction
 - \hookrightarrow seen also in \Rightarrow Hg; Bi; Ag; Fe; Cu
 - \hookrightarrow k/as "clap-ton Lines"
 - Cabot's Ring
 - \hookrightarrow ie Abdominal Pain
 - Colic & constipation seen; very Rarely diarrhoea.
 - \hookrightarrow dry belly ache
 - Encephalopathy \Rightarrow M/c in children
 - \hookrightarrow Mainly d/t Tetra ethyl lead
 - Pure Motor Neuropathy \Rightarrow Least complication of Lead poisoning
 - Sterility \Rightarrow in both sex
 - Wrist & foot drop \Rightarrow Lead palsy
 - \hookrightarrow d/t peripheral Neuropathy
 - only in 10% of cases

Diagnosis \Rightarrow By Measure

(57)

Blood Lead level $> 10 \mu\text{g/dl}$

• Urine test \Rightarrow ~~Test~~ coproporphyrin (CPU) Levels: of $0.25 \mu\text{g/L}$ of Lead is diagnostic

Rx \Rightarrow 1. Succimer/DMSA

\hookrightarrow Given orally; Least Nephrotoxic; useful in G6PD deficiency

2. $\text{Ca}_2 \text{ EDTA} + \text{BAL}$

3. $\text{Ca}_2 \text{ EDTA}$

\hookrightarrow In Lead encephalopathy; it is not

Least toxic compound of Lead \Rightarrow Lead sulphide

Most toxic compound of Lead \Rightarrow Lead Acetate

Zinc (Metal Fume Fever)

- Resembling Malarial chills; No wheezing
- Self-Limiting Influenza-like syndrome

Mn (Manganese)

- Parkinson's Like disease

Iodine

- Painful Parotitis resembling Mumps

Rx \Rightarrow BAL \rightarrow ~~Penicillamine~~ Copper \Rightarrow As a Metal Non-poisonous.

Copper subacetate \Rightarrow FD: 15 gm / FP: $1-3 \text{ days}$

Copper sulphate \Rightarrow FD: 30 gm / • Blue-green vomitus; Purple (blue-green) line

Non-Metallic Poisoning

Lethal dose \Rightarrow 60-120mg \leftarrow **PHOSPHORUS** \Rightarrow Protoplasmic poison

Red

- Not toxic
- used in Match boxes

White/yellow

- toxic

- Spontaneous combustion ($> 34^{\circ}\text{C}$)

Stored under water

Diwali
Poison

also Hg

Arson

Burning of ~~house~~ in old days.

\hookrightarrow Pharaoh's serpent \Rightarrow Mercury thiocyanate
 \hookrightarrow पहरा साँप की रहे लता

- Acute Phosphorus poisoning \Rightarrow

C/F \Rightarrow Luminiscent
Vomitus

Smoky
stool
syndrome

Acute yellow
atrophy of Liver

- Chronic Phosphorus poisoning \Rightarrow

C/F \Rightarrow Phossy jaw | Glassy jaw

\rightarrow Osteonecrosis of jaw

\hookrightarrow M/c \neq Mandible involved

\rightarrow Fumes of phosphorus \Rightarrow White phosphorus

Rx \Rightarrow No specific Antidote

KMnO_4 ,
vit. K

Vegetative Imitants

Abrus Precatorius (Ratti)

Seeds - wt \Rightarrow 108 mg \hookrightarrow K/a "Gunchi; crab eye; Rosey pea".

Active principle \Rightarrow Abin \Rightarrow it is Toxalbumin & Ricin; protein
 \hookrightarrow Resembles Viper venom
 \hookrightarrow Vasculotoxic

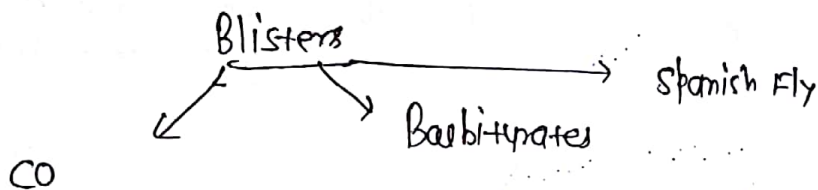
Medico-legal importance \Rightarrow Making "Suis"
 \hookrightarrow used to look like viper bite (••)

Artificial Bruise \Rightarrow used to cheat falsely

↓
 (A) Semecarpus Anacardium ; (B) calotropis; (C) Plumbago; (D) Dithinol
 (Marking Nut) \hookrightarrow Active Principle \Rightarrow Semecarpol & Bhilawanol \rightarrow Alp \Rightarrow Gigantin (NEET 16)
 Used by washerman to Mark clothes. Spanish Fly | Cantharides | Blister beetle

Active Principle \Rightarrow Cantharidin (Aphrodisiac)
 \hookrightarrow ↑ the sexual desire

- C/E \Rightarrow Priapism - Persistent ~~penile~~ Penile erection
 \hookrightarrow also seen in Scorpion sting



Carbon Monoxide (CO)

Anemic Anoxia (b/c it reacts 200 times more tightly c Hb than O_2 & causes Anemic type of hypoxia) ^{AI-14}

C/E \Rightarrow 1st (47) - Headache

* 40-50% CO - A/c Intoxication (Symptom Resemblance)

* 80% CO - Death d/t Respiratory arrest.

Dx \Rightarrow

Kunkel's test (Tannic Acid) ; + Hoppe-Seyler's test
(10% NaOH)

Rx \Rightarrow

Hyperbaric oxygen.

PM \Rightarrow
examination

Degeneration of Globus Pallidus ; Fine froth @ Mouth & Nose ;
Bright - cherry red discolouration.

* Upper Limit of safety of CO in Air \Rightarrow 0.01%.

BARBITURATES

— Hypothermia, Coma; Non-Reactive pupil

Rx \Rightarrow Forced Alkaline diuresis aa

— Automatism \Rightarrow ~~Accidental~~ self poisoning

— Golden Urine \Rightarrow Urine is golden in colour

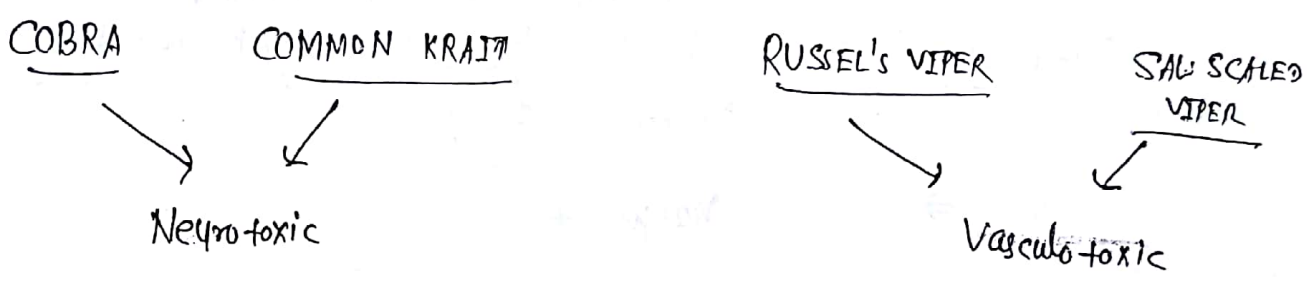
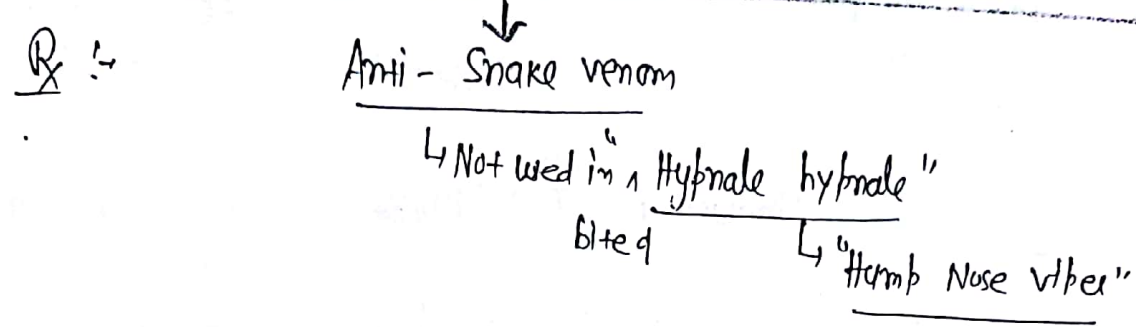
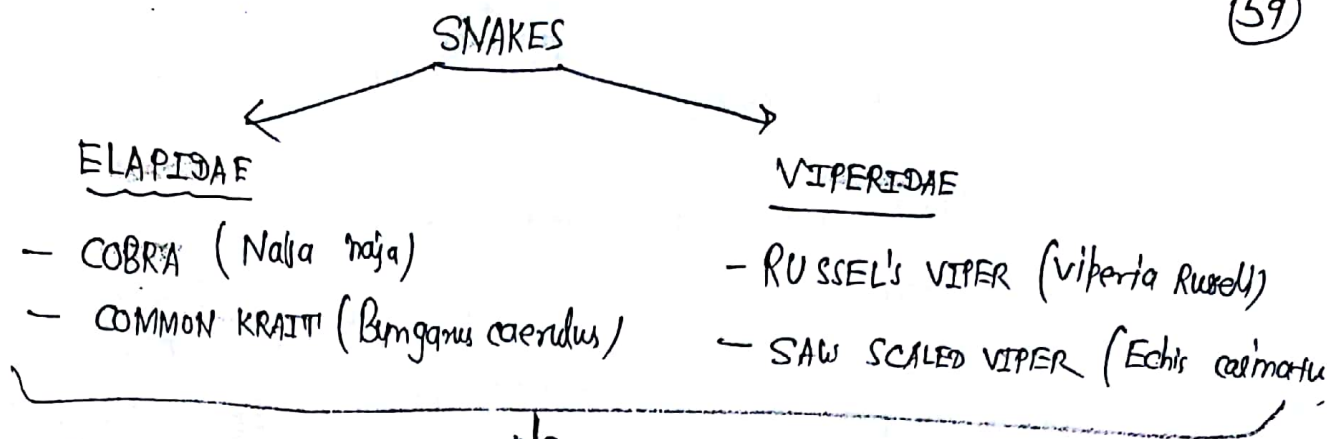
Liquid gold

L Urine of Amphetamine Abusers

L 40% unchanged pass in Urine

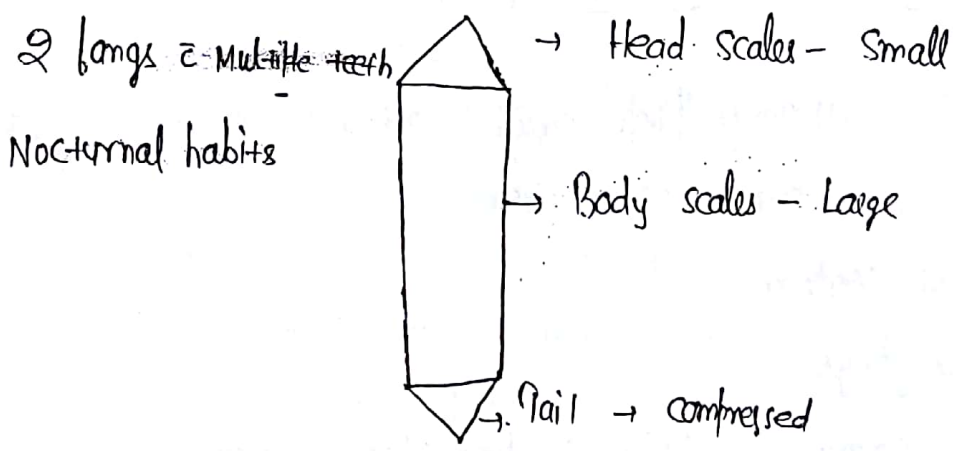
||

after selling it; we can earn Money.



Sea Snakes (Hydrophidai) ⇒ Myo-toxic

Poisonous Snake



OPIUM \Rightarrow dried juice obtained by incision of the
Unripe capsule (NEET).

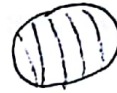
— AFIM / MADAK / CHANDU

— Unripe fruit of *Papaver Somniferum*

— Bhuki

\Downarrow

Drug obtain from
"Poppy Husk"



Lancing

\Downarrow

Longitudinal incision on
fruit for opium

— C/F \Rightarrow Drowsiness; Resp. disorder; Pin point pupil; Coma

— Withdrawal feature \Rightarrow Drowsiness; Rhinorrhea; Lacrimation; Goose flesh;
Mydriasis (dilated pupil); Insomnia; Yawning; Muscle

— Fatal dose \Rightarrow Opium — 2 gm
Morphine — 0.2 gm
cramp & body pain; Rise in BP

— Dx \Rightarrow Marquis test

— Rx \Rightarrow G/L — KMnO_4 — 1:500

\downarrow Doc \Rightarrow Naloxone (i.v.) i/b or Naltrexone

\downarrow for Maintenance therapy.

— Rx of withdrawal \Rightarrow Methadone (Doc)

HEROIN (M/c abused opioid).

SMACK; JUNK; DOPE; BROWN SUGAR

— Diacetyl Morphine

— Designer drugs

— Shooting gallery \Rightarrow Authorised place where to administer the drug

\downarrow

i.v. \Rightarrow Mainlined; shof

Hot Shot \Rightarrow HEROIN + STRYCHNINE

Chasing of the dragon

Rx \rightarrow clonidine;
Buprenorphine;
Pentazocine.

ALP \Rightarrow Levohyoscyamine; Hyoscyne (scopolamine) & Atropine.

STUPEFYING AGENTS

Datura \Rightarrow earliest symptom


Roadside Poison \Rightarrow Bitter taste in the Mouth.


Datura \Rightarrow Thorn Apple
Stramonium

Fatal dose \Rightarrow 100 seeds

Resembles \bar{c} chilli seeds

Human's hand

Embryo of Datura \Rightarrow curved outwards
()

Embryo of chilli \Rightarrow curved inwards
()

C/F \Rightarrow Dilated Pupil \Rightarrow Diplopia

Dry Hot skin \Rightarrow Hyperthermia

Delirium \Rightarrow Muttering

Pill Rolling Movement

Carphologia

Rx \Rightarrow Physostigmine

Cocaine

Coke, Snow; Cardillac; White lady

Snorting

Smoke

\downarrow

CRACK

\hookrightarrow Max S/E of cocaine
clt smoke

Half-Like cocaine \Rightarrow 1 hr.

Cocaine + Heroin \Rightarrow Speed ball

C/F \Rightarrow Black tongue & teeth

Perforated Nasal septum

Excited delirium

Hallucinations (Visual > tactile)
 \downarrow

Magnan's symptoms / cocaine bugs

Formication \Rightarrow Any Hallucination who
involve insects

\hookrightarrow also seen in

(A) Ergot Poisoning \Rightarrow St. Anthony Fire
 \downarrow

(B) As poisoning
(C) Antipsychotic poisoning
Resembling Sialica
Rx \Rightarrow Atropine, Naloxone

CANNABIS / MARIJUANA / INDIAN HEMP

Active Principle \Rightarrow Δ^9 -Tetra hydro Cannabinol

aa Smell \Rightarrow Burnt Rope Smell

Marijuana cigarette / Reelers / Weed / Joint \Rightarrow 1-6 hrs

Preparation from Cannabis

Active Principle

Bhang \Rightarrow Dried leaves \Rightarrow 15%.

Majoon \Rightarrow Sweet (Bhang)

Grass \Rightarrow Flowers (Female) \Rightarrow 25%

Charas \Rightarrow Resin (stem) \Rightarrow 40%

Hashish

C/F \Rightarrow i) Run Amok \Rightarrow Impulse to kill

\hookrightarrow Person is Responsible for crime

\hookrightarrow b/c insight \oplus

ii) Amotivational Syndrome \Rightarrow Apathy; Loss of interest; Reduced drive.

* Least toxic : Flashback phenomenon \Rightarrow Person experience the leaves of cannabis we don't actually using it.
! Bhang : Fatal dose: 10 gm/kg Body wt.

* Most toxic : Charas : Fatal dose: 2gm.

HALLUCINOGENS

1. LSD \Rightarrow Purple heart; Mind expander; Golden dragon
 \hookrightarrow pt. hear the colour? - synesthesia
 \hookrightarrow Mixing of sensation

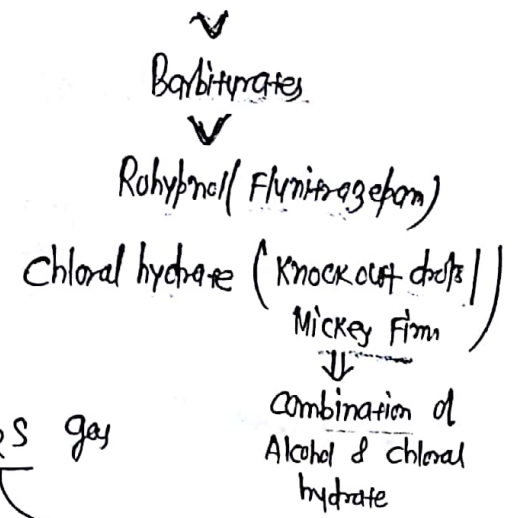
- taking a trip
- Flashback phenomenon
 \hookrightarrow also in Cannabis.

2. Angel dust \Rightarrow PCP | Phencyclidine

3. Rave drugs \Rightarrow M/c \Rightarrow Ecstasy (MDMA)

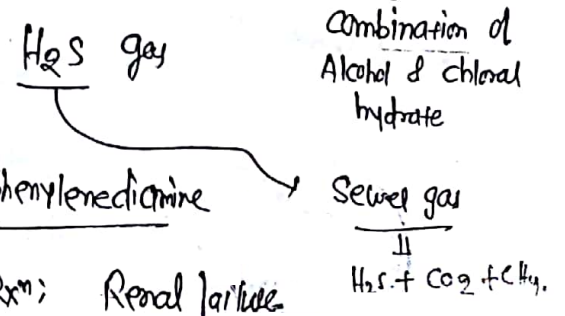
- GHB
- LSD
- Amphetamine
- Methcathinone \Rightarrow cheaper & alternative to ecstasy
 \hookrightarrow (Meow - Meow)
- Ketamine

4. Predator drugs / Date Rape drugs \Rightarrow M/c \Rightarrow Alcohol



~~xxx~~ 5. Japanese detergent Suicide \Rightarrow

~~zipper~~ 6. Hair dye Poisoning \Rightarrow d/t p-phenylenediamine
 \parallel
Cause Allergic rxn; Renal failure



Cardiac Poison

- In all cardiac Manifestation Rate/Rhythm



Rx \Rightarrow Atropine | symptomatic

- but in Amblyopia



Tobacco \Rightarrow Smoker's heart

- Respiratory Symp \Rightarrow Cyanide $\xrightarrow[\text{2 enzymes}]{\text{Inhibits}}$ $\xrightarrow{\text{Cytochrome } c_{aa}}$ Carbonic Anhydrase

L Histotoxic Anoxia

Achlorhydric Individuals - Immune

Double salts are Non-toxic

KCN - FD - 0.2-0.3 g.

FP - 2-10 min

"Lee Jones Test"



used for Cyanide Poisoning;

to differentiate it from

Salicylate Poisoning.

Rx \Rightarrow Inhalational Amyl Nitrite,
Sodium thiosulfate,
Hydroxocobalamin;
Dicolchel EDTA } ELI LILLY KIT

\rightarrow Gynecomastia; Trigeminal Neuralgia \Rightarrow Digoxin Poisoning

\rightarrow Hippus \Rightarrow Aconite Poisoning

L Pingling sensation

Chest Pain

Hypersalivation

Hypotension

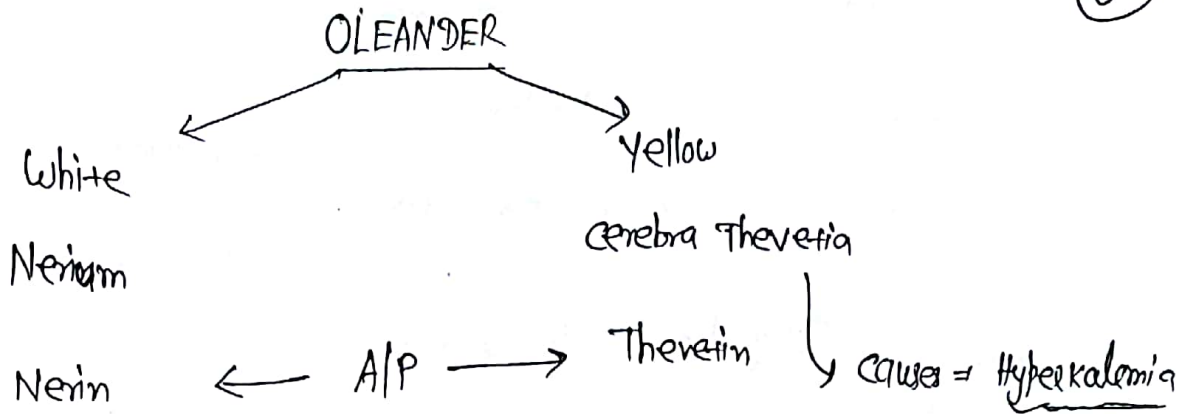
Around Perioral Region \leftarrow

L K/a " MONKS HOOD / Mitha bish (MH12) / Blue Rocket."

Roots is most potent b/b seed.

FP \Rightarrow 2-6 hr aa

death d/t paralytic of Respiratory center



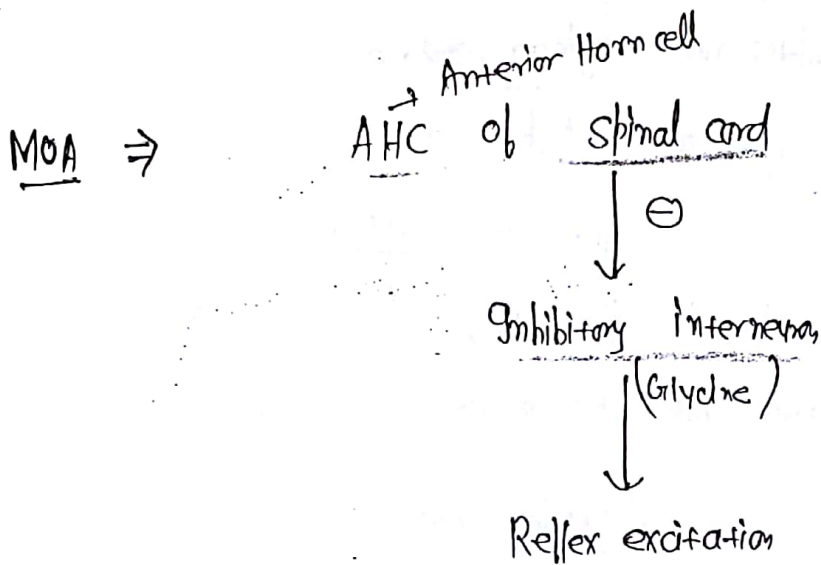
Q. Asphyxial death + black colour Mucosa ⇒ Cyanide Poisoning

SPINAL POISONS

Strychnos Nux vomica | KUCHILA

A/P ⇒ Strychnine ; Brucine

Fatal dose ⇒ 1 crushed seed (Uncrushed seed is Not digested)



C/F ⇒ All muscles are affected @ same time
consciousness - clear b/w convulsions (Gr77C)

Spinal postures \Rightarrow A. Opisthotonus (≡) \hookrightarrow Backward Arching of spine
 B. Emprosthotonus \hookrightarrow Forward Bending
 C. Pleurosthotonus \hookrightarrow sideways Bending

Rx \Rightarrow Diazepam; closed dark Room
Antidote for strychnine poisoning \Rightarrow Short Acting Barbiturates
 \Downarrow
 Phenobarbital.

Aluminium Phosphide (Alphos/celphos)

Each tab - wt \Rightarrow 3 gm (3 gm of Aluminium phosphide liberates 1 gm of phosphine).

\hookrightarrow Aluminium phosphide = 56%
 \downarrow

Phosphine gas \Rightarrow 1 gm FD

- MoA \Rightarrow Inhibits cyto-c oxidase^a
- C/F \Rightarrow esophageal stricture^a; Myocardial Necrosis^a
- Rx \Rightarrow Symptomatic hypomagnesaemia
- Dx \Rightarrow Silver Nitrate Paper test
 \hookrightarrow give Black colour

- PM \Rightarrow Subendocardial Hemorrhages
 Flame shake Hemorrhages

\rightarrow M/c cause of death \Rightarrow Cardiogenic Shock

* Aluminium phosphite & hypophosphite are Non-toxic salts

CORROSIVE

Acid

Alkali

?? More dangerous

≡

Coagulative
Necrosis
Stomach
doesn't come
by "HF"
↳ damage by "Liquefactive Necrosis"

Liquefactive Necrosis

M/c damage organ

Esophagus

Vitriolage (Acid Attack)

326(A) IPC

↓

Acid attack

10 yrs to Life imprisonment

326(B) IPC

↓

Attempt to acid attack

5 yr to 7 yr Punishment.

SULPHURIC ACID (oil of vitriol)

everything black except teeth = chalky white

FD ⇒ 5-10ml

FP ⇒ 12-24hr

✓✓ Gastric Perforation - Common wet blotting paper like consistency

Rx ⇒

Weak alkali; MgO

Steroids

↳ b/c we can't Neutralize strong acid w strong alkali
(as it is Exothermic).
↳ Prevents Long term complication like Esophageal stricture

COD in Adults \Rightarrow ~~Re~~ Gastric Perforation

COD esp. children \Rightarrow Reflex vocal spasm

Nitric Acid

— Stains all the GIT & tissue \bar{c} yellow colour



"Xanthoproteic Reactions"

— Brown discolouration of Urine.

— Inhalation of Fumes \Rightarrow Lacrimation
Photophobia

Boric Acid

— A/w "Boiled Lobster syndrome".

Oxalic Acid (salt of sorrel)

— Used to Remove Ink for forensy.

C/F \Rightarrow PCT damages,
Hypocalcaemia,

Oxaluria \Rightarrow Enveloped shape crystals

Rx \Rightarrow 10% ca gluconate 10 ml i.v

C/I \Rightarrow Large Amount of water

CARBOLIC ACID / PHENOL

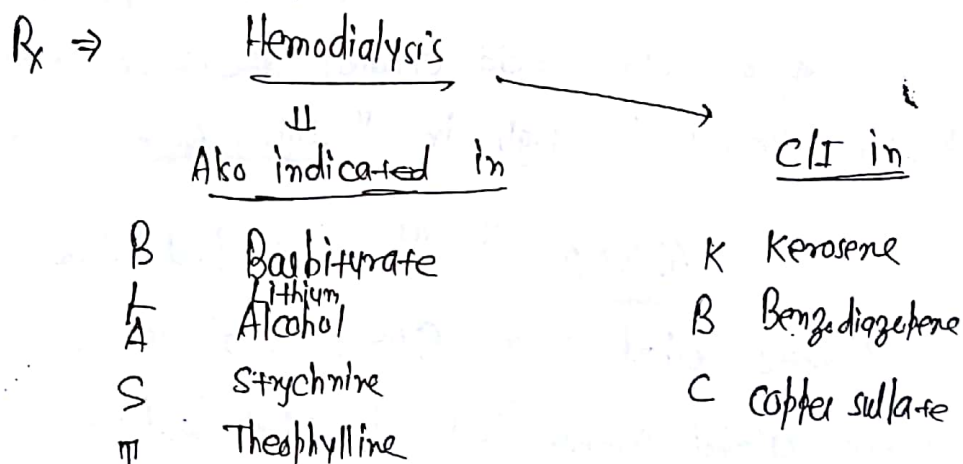
(65)

- Miosis
- Lock jaw
- Delay Putrefactions
↳ also by Antimony; zinc
- Carbolicuria
↳ colourless $\xrightarrow[\text{standing}]{\text{m}}$ Green

dl + hydroquinone; } \Rightarrow oxidized
Pyrocatechol } in Air

- Oochnosis (Blackish pigmentation of cartilage)

Chronic - Phenol Manasms



* Colour of Stomach Mucosa in different Acid poisoning \Rightarrow

Black	\rightarrow H_2SO_4	} All these damage caused by coagulative Necrosis
Yellow	\rightarrow HNO_3	
White	\rightarrow HCl	
Brown/Leathery	\rightarrow Phenol	

Methyl Alcohol

- Wood Alcohol
- Formic Acid

Accumulation of Formic Acid



Lactic Acidosis / High Anion gap Metabolic Acidosis

C/F

- Abd. cramps
- optic Neuritis (irreversible)

FD

- 60-200 ml
- Hooh tragedy

Rx ⇒

- Fomepizole ⇒ 4-Methyl Pyrazole



Inhibits alcohol dehydrogenase

it doesn't work

- Ethanol ⇒ given both as i.v / oral

- Hemodialysis → Bc it competitively inhibits the conversion of Methanol to Formic Acid.

Folic Acid or Folinic acid enhances the Metabolism of Formic Acid to CO_2

* Methanol concⁿ is high in "Illicit Alcohol". Illicit ⇒ Forbidden by Law; Rule or custom.

ALCOHOL

⇒ Rectified alcohol ⇒ 90% Alcohol

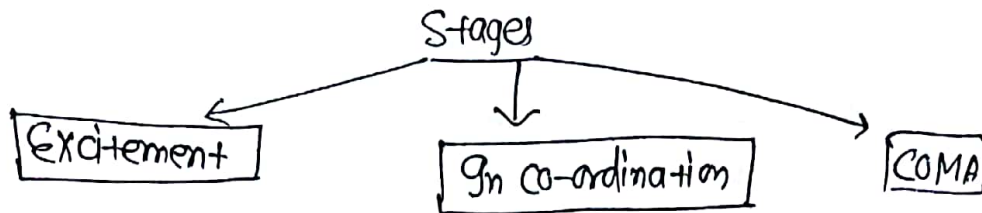
- Absolute alcohol ⇒ 99.5% alcohol

- Max^m alcohol content is pr^t. in which hard drink ⇒ vodka (60-70%)

- Absorption ⇒ Stomach → 20%

Intestine → 80%

- Metabolisation ⇒ Liver → 90%



↓ Blood Alcohol Content
 • BAC < 150 mg-%

• Alcohol gaze
 Nystagmus

• 40-80 mg-%

• Under the Influence
 ↳ 80-100 mg-%

150-400 mg-%

> 400 mg-%

* 510 I.P.C

↳ Creating Public Nuisance under Intoxication is Punishable

↳ 24 hr. Jail + 10/- Fine

• Windmark's Formula

$$a = p \times r \times c$$

a = Amount of alcohol in drink

p = body weight

R = constant

c = concn of alcohol in blood

* In Stage ① & ② : Pupil is dilated

Stage ③ : Pupil is constricted

↳ There is "MacEwans's"

↓
 Stimulation of person causes Pupil to dilate & Return to constricted pupil.

Q. Where do you expect higher Amount/concn of Alcohol?

Blood/ ~~urine~~ (3:4) OR (1:1.33)

• FD: 150 ml of absolute alcohol.

Alcoholic Blackout = 80-100 mg-% of BAC

Kozelka & Hine

Tests
Caveats

Breath Analyser
 ↳ Drunkometer

↓
 • Henry's Law (Reason)
 • Potassium dichromate

Gas chromatography
 ↓
Best.

Legal

Limit while driving $\Rightarrow < 30 \text{ mg\%}$

Legal age of drinking $\Rightarrow 25 \text{ yrs.}$
45-60 mL

• Alcohol tends to follow zero order kinetics

• Rate of Metabolism: $15 \text{ mg} / 100 \text{ mL/hr}$

⑨

6 PM \longrightarrow 9 PM
? \downarrow 100 mg%
145 mg%

ORGANOPHOSPHORUS COMPOUNDS

Alkyl phosphatase

- Malathione
- HEMP (Hexa ethyl tetra phosphate)
- TEPP (Tetra ethyl pyro phosphate)

Aryl phosphatase

- Parathion (Folidol/Nitro-stig-mine)
- Paraoxon
- Diazinon (TIK-20)

\downarrow
Irreversible inhibitors of enzyme cholinesterase by phosphorylating the catalytic site of enzyme.
 \downarrow
It hydrolyze "Ach".

C/F \Rightarrow Chromolacrymhea \Rightarrow Shedding of Red colour tear d/t Abnormal porphyrin Metabolism.

Lacrimations; Miosis (pin point pupil); Pulmonary edema
Salivation; Muscular fasciculation;
Sweating; Tremor

* Chronic exposure to OP eg (Triorthomethyl phosphate)

↓
Additive in Lubricating oil

↙
Delayed Neuropathy
(1-2 weeks after exposure)

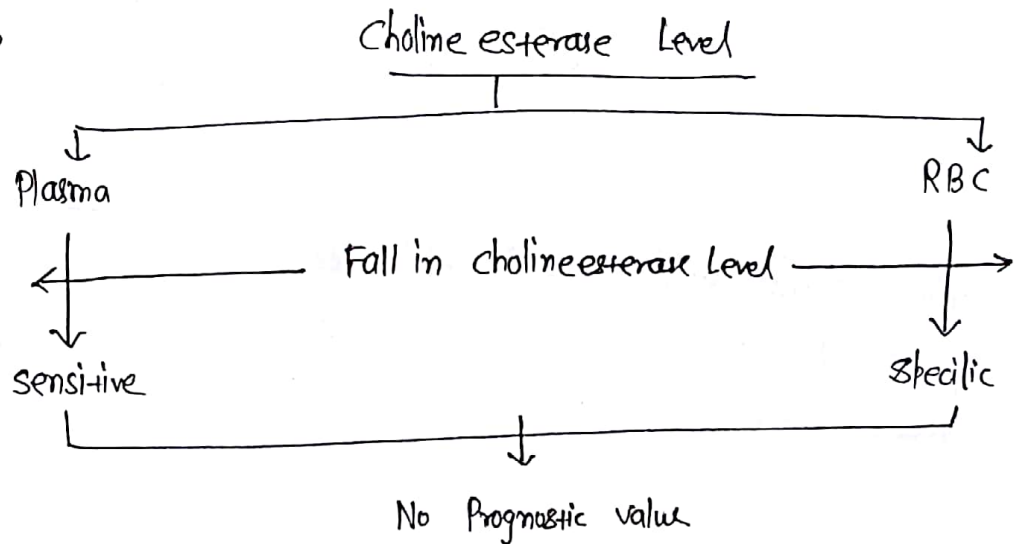


- a/w Demyelination of Axons
- Not caused by cholinesterase inhibition but Rather by Neuropathy Target esterase (NTE) Inhibition

↘
Intermediate Syndrome
(after 1-4 days),

- Muscle weakness
- Caused by cholinesterase inhibition
- doesn't Respond to oximes or Atropines.

Δx ⇒

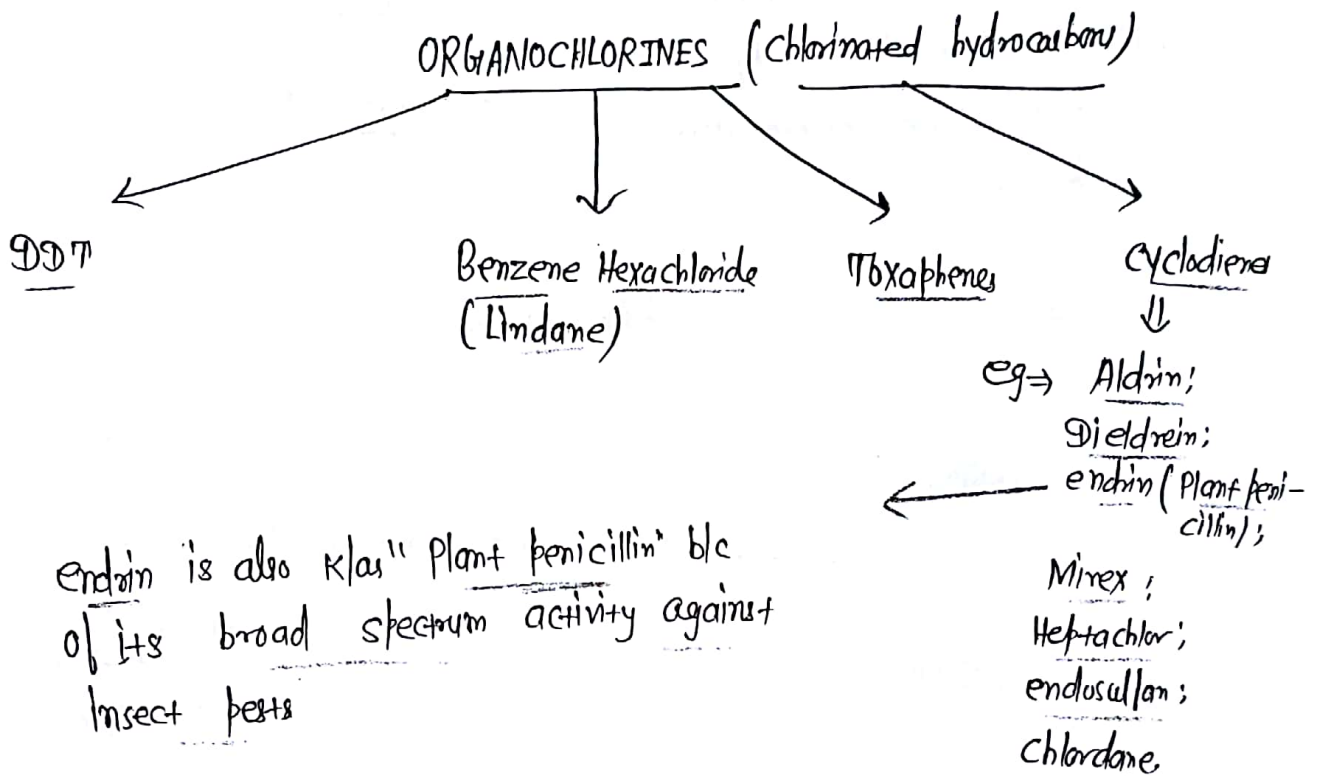


Rx ⇒

- ① Activated charcoal;
- ② T/t of choice ⇒ Atropine Sulfate
↳ causes Resp. depression.
- ③ Oximes (Pralidoxime)

CARBAMATES

- Reversible inhibitor of cholinesterase
- eg \Rightarrow Physostigmine; Neostigmine; Edrophonium; Carbaryl; Propoxur.
- \Rightarrow Rx \Rightarrow Atropine; Oxime
 \hookrightarrow Not useful



NPS ACT, 1985

- Narcotic Drugs Psychotropic Substance Act, 1985.
- It covers only Narcotic & Psychotic drugs.
- Nicotine is Not covered under NPS Act.

NPS ACT :- ① Embezzlement of opium is an offence.

↓
(गबन)

Embezzlement of Any other is Not offence (only opium is an offence).

② This act prelu Rehabilitation of Drug Abuser
(Not only Punishment; but also)

DRUG TRAFFICKING

Body Packer @ Body Bag : Person who transport the drug;

Pusher : Person who distributes the drug (distributes to clients)

Stuffer : Consume the drug for the fear of being caught.

Client/ Abuser : Consume the drug for satisfaction.

COMA COCKTAIL

- Given to pt. who comes in coma in Unknown history.

- Consist of - Dextrose - Hypoglycemia

Naloxone - opioid induced coma

Vit. B₁ / Thiamine - Alcohol induced coma

DRUGS & COSMETIC ACT, 1940

- Amended by Drugs Act 1964 to "include Ayurvedic & Unani drugs". (AI-14).

ASAY The Label or container of Medicine should display the formula or a list of ingredients contained in the drug.

SMELL OF POISONS

CN (cyanide)	⇒	Bitter Almonds
Arsenic	⇒	Garlic Like
OPC (organophosphates)	⇒	Kerosene Like
H ₂ S	⇒	Rotten egg
Zn ₃ P ₂ (Zinc Phosphide)	⇒	Fishy
Cannabis	⇒	Burnt Rope
Nitrobenzene	⇒	Shoe Polish
Palaldehyde / chloral hydrate	⇒	Acrid / Peas
↓		
K/a "DRY WINE"		